The Builder.

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Leeds.—Fountains Abbey.

LESS to our surprise than our regret, we hear that, up to this time, the financial results of the National Exhibition of Works of Art in Leeds are not satisfactory. The number of visitors is comparatively small: the crowds have not yet begun to flow into the town from other quarters; and the people of Leeds themselves are somewhat apathetic on the subject. The committee, as we thought at the time, put too high a price on the season tickets; and, by thus keeping people out of the building on the opening day, created a large amount of dissatisfaction, which has spread and grown. Men who had each given two or three hundred pounds towards the erection of the Infirmary, when they found that they could not attend the ceremony with wife and daughter without paying fifteen guineas equally with those who had given nothing, or go themselves without a five-guinea ticket each, were soured, and declined to go at all,—and, moreover, have grumbled ever since. Let us hope, however, that this feeling is passing away, and that all will avail themselves of the means of instructive enjoyment now within their reach. The collection is one of great interest and value, and to all, in the North especially, affords an opportunity to see, without difficulty, fine works of art that may not soon occur again. Amongst the works of the old masters exhibited,—Italian, Spanish, German, and Flemish,—are many of the greatest beauty and value,—pictures each worth a journey to see; and the collection of ancient drawings is also one of great interest. The catalogue rightly observes that nothing gives a more conclusive evidence of the artistic ability and knowledge of the painter than those sketches and drawings which have been done off-hand from the subject or model which he wished to note or to study. They are invariably forcible and truthful, and have ever been in high esteem with all admirers of art. A distinction should be made between those sketches which are merely notes of particular objects that struck the artist's fancy, as seen in many of the present examples by L. da Vinci, and those more or less finished studies made for the arrangement or completion of a large work, such as are most of Raffaelle's; whilst another series consist of the study of the work itself in chalk, completely carried out on a small scale to serve as a model for the large and finished painting. The attention paid by the old masters to this system of study was, no doubt, one of the main reasons of their success in works on a large scale, and the studies themselves have a value and importance which place them amongst the most treasured remains of the different masters that the amateur possesses.

In the collection of works by deceased British painters, Reynolds and Gainsborough reign supreme. Some works by Etty, Turner, Mulready, Roberts, and Philip appear here; but others by the same men will be found in the Gallery of Living British Painters. This contains a large number of beautiful works, and well represents the present position of the art. The drawings in Water Colours by British artists are also an admirable collection:—

"This is a school of art, in a great measure distinguished by different characteristics, as well in style as in practice, from any other, and is one in which we have taken the lead over other nations. Although practised to a certain degree by the early painters of Europe in the fifteenth or sixteenth century, for sketches and studies, and carried out with no slight amount of finish by the painters of the Dutch school in the seventeenth century, yet it is, as an art, essentially one of English origin and growth, and in which we have produced the greatest masters, of whom excellent examples will be seen in the present collection, commencing from the simpler style of Sandby, Girtin, Barrett, Varley, &c., through the system founded by Turner, to the large and highly-finished works of living artists, in which every appliance for effect is freely used, and with a success and power which silence the opposition of those who advocate the older system, and object to the present extensive employment of body-colour."

In the Museum of Ornamental Art some of the early works are exciting wonder and admiration. The illuminated MSS., the carvings, enamels, metal-work, and porcelain include rare objects. We shall hope to hear soon of a larger number of visitors, and that there is no longer any doubt as to the financial success of the undertaking. Let the working-men look to it as well as the gentry. Workmen, by their representatives, have lately expressed their opinion that the want of public museums of works of ornamental art is a bar to their progress, and leaves them at a disadvantage in competition with the men of other nations who have such collections to resort to. Let the working-men of the North now show that they are ready, even at some little personal sacrifice, to take the utmost advantage of museums when they are provided for them.

Leeds is full of life; improved thoroughfares are being formed, and new buildings are rising in all directions. A few days ago the Church Institute, designed in the style of the fourteenth century by Messrs. Adams & Kelly, was opened. It is of brick with stone dressings and coloured bands, and has cost about 4,000*l*. In the basement the greater part of the space is occupied by wine-cellars, and the remainder is devoted to the purposes of a sitting-room and kitchen for the use of the librarian, and a large kitchen fitted up with boilers and other appliances likely to be called into requisition when tea-meetings and *soirées* are held. On the ground-floor there are the library and reading-room, together with rooms for the clergy and secretary. The first-floor consists of a lecture-hall, 69 ft. by 48 ft., council-room, and two class-rooms. On the floor above, the librarian's bed-rooms and some store-rooms have been placed. Mr. Edward Boothman has done the brickwork, and Messrs. Pounder have executed the stonework. Stained glass has been supplied by Messrs. Lavers, Barraud, & Westlake, and gasfittings have been put up by Messrs. Skidmore & Co.

The great bank recently finished from the designs of Mr. Scott, Mr. Perkin being the resident architect, so to speak, and mainly responsible for the interior arrangements, is an ornament to the town. Red brick, with stone dressings, are the materials used: Italian Gothic is the style employed. Mr. Perkin, we may add, has done much in the shape of churches round about Leeds. In the borough itself, by the way, there are now no fewer than forty-four churches. With reference to the exterior of the bank a question has been raised which is worth a thought. In the brick string-courses an incised ornament has been cut by hand *in situ*. Now, some say this is surely a mistake. Brick is a moulded material, and might as well have been moulded with the required ornament in it, of course with great saving of expense. Others, however, are found who defend the course taken on the ground that greater sharpness and vigour have been thereby obtained. Any how, the effect produced is very agreeable. The building is a credit to all concerned.

The new Northern Hotel now in course of completion under the direction of Mr. Hadfield,—Italian Gothic,—is a good, substantial, not to say handsome, structure. A building opposite to it, to be let out in chambers, with round and pointed arches, brick and stone like nearly all the new buildings, is *bizarre* in the extreme. The Cloth Hall, finished this year, is a poor thing; presenting a long straight sky-line, with clock-turret in the centre. The improvement in the architecture of Leeds within the last six years is, nevertheless, remarkable. Every shop or warehouse that is now built makes an attempt at style. The great enemy to all this is smoke, which in about four years renders brick and stone the same colour, and takes from the work all chance of giving pleasure. Surely there is power to prevent this injury if the corporation would put it in force. That any furnace not consuming its own smoke should be permitted in Leeds, the centre of the machine trade, is more than discreditable: it is stupid. Many of the manufacturers require no compulsion to do the wise thing. In the remarkable establishment of Messrs. Greenwood & Batley, whence all the Governments in the world are supplied with the machines and tools for making weapons of offence, there is a furnace at work that consumes nearly the whole of its smoke, and so, too, effects a considerable saving in coals. We were not surprised to learn that Messrs. Greenwood & Batley had received plenty of medals marked *Honoris causa*.

Of course few of our readers who visit Leeds will fail to see Bolton Abbey and bridge, Kirkstall Abbey (Norman in style, and picturesque in appearance); Brimham Rocks (including the Druid's Coffin, the Baboon's head, and the Pulpit Rock); Harrogate, the Healthy; Knaresborough, with its castle, bridge, rocks, wood, and river; Ripon Cathedral, now nearly restored; and Fountains Abbey at Studley.

"From streams and springs, which Nature here contrives,
The name of FOUNTAINS this sweet place derives."

A sweet place, indeed: the ruins, since the excavations made by the late Earl de Grey, are more extensive than those of any other abbey we remember. We have made two or three small sketches, to convey some idea of its character,* — one, showing the nave and south aisle of the church; another, a view of part of the abbey from Robin Hood's Well; and the third, the lady-chapel, which extends north and south beyond the choir, at the east end,—a second transept, as it were. The line of the choir is carried on through the lady-chapel by two arches on each side, supported in each case on a lofty clustered column, seen in the view. The small columns which surrounded the octagon pillar remaining have disappeared. The effect of this part of the building must have been very beautiful. The large window seen at the end, or, rather, side, of the lady-chapel, was a Perpendicular interpolation. The nave is Transition Norman. At the west end of that also a Perpendicular window was introduced, the date of which appears above it outside in archaic numerals. The guide-book sold on the spot says,—"The large window in the west end of the nave was put in during the abbacy of Darneton, and may be looked upon as the last work of any importance, with the exception of the tower, added to the place. Above this window, on the outside, is a rude representation of a bird, holding a cross, and resting on a tun, conjectured to be a pun upon the name of

* See p. 490.

Thurston, *i.e.*, a thrush upon a tun. A scroll behind the bird bears the word and date,—DERN, 1494." Surely the more obvious pun is on the name of the abbot by whom the alteration was made,—Dern-tun. Dern, by the way, is an obsolete word (from the Saxon), meaning sad, mournful:—

> "The birds of ill presage this luckless chance foretold,
> By *dernfull* noise."

But it is unnecessary to look further for a meaning. The remainder of this front is of twelfth-century work.

Fountains is truly a wonderfully fine ruin, and the grounds of Studley (through which it is approached), with their mile-long avenue and Ripon Cathedral at the end of it, the river Skell widened out to a lake, the laurel bank, and magnificent trees, contribute to form a whole rarely surpassed. A Norwegian spruce, 134 ft. in height, and a splendid beech, 60 ft. to the first leaf, are noteworthy items in the grounds. The remains of the Abbey include the Norman Chapter-house, the cloisters, the refectory with readers' gallery, the Abbot's house, the ancient bridge, and the mill and forge. The artist, the lover of nature, and the archæologist will alike find matter to delight in a visit to Fountains Abbey.

EXAMPLES OF RECENT VILLA RESIDENCES AND COTTAGES.*

MESSRS. BLACKIE have now completed the issue of a work commenced by them some time ago, consisting of examples of villas and cottages recently executed in various parts of the kingdom by different architects. On the appearance of the first few parts we made favourable mention of the undertaking, and have now but to indicate the manner in which it has been brought to a close. Nineteen firms have contributed examples of villa residences and cottages erected under their care. Three of these belong to Edinburgh, six to London, four to Glasgow, four to Manchester, and two to Nottingham. There are thirty houses, in all, illustrated.

Among the villas represented are two that have been designed and built by architects for their own occupation. In these we have opportunity of seeing the plotting out of the greatest amount of accommodation in a given space; the adoption of various cunning contrivances to secure comfort, combined with an artistic eye to effect and a determination to avoid the miseries of bad construction. All this, it may be urged, should always be found in the design of an architect, whether he is building for himself or an employer; but it must be remembered that, in nine cases out of ten, a client requires an architect to embody his ideas, not to supplant them with a novel design to which his mind is a stranger. Those who resolve to build, generally ponder over the project for some time beforehand, and in that period revolve in their minds somewhat of the aspect their house is to present; still more of the accommodation it is to contain, and arrange with even more precision the plotting out of the ground-plan. When the architect is consulted, these previously-formed ideas are imparted to him as part of his instructions, and, generally speaking, it is the amount of skill and taste with which he is able to place these on paper that is the criterion in the client's mind of his ability to undertake the superintendence of the execution of the project. A tangible presentation on paper of the crude ideas of the client, polished and articulated with trained skill, is, we may repeat, more acceptable than a fresh set of ideas on the same subject, starting from a different point of view, nine times out of ten. But when an architect builds for himself, he is unfettered in the matter of instructions. He has still, to be sure, fetters; such as cost, prospect, and site; but these he would have to contend with as well as the predilections presented to him for embodiment if employed to build for another. The first of these villas has been designed by Mr. Banks, of the firm of Banks & Barry, for his own occupation, and built at Dulwich Wood Park, to the west of the north end of the Crystal Palace. The treatment is quiet, composed, reticent, and finished. The eye receives from it an impression of rest, invitation, and elegant cosiness. A Tudor porch hospitably shelters those who wish to enter. The entrance-door opens into a small square hall, which in its turn gives access to an inner hall or corridor, running at right angles from it, from which the staircases and different rooms are entered. One staircase departs upstairs, a second conducts downwards, for owing to the deep dip in the site, there is a basement floor, which, although out of sight from the entrance, is level with a kitchen court or yard in the rear. On the basement floor are the kitchen, 13 ft. by 13 ft.; scullery, 10 ft. by 7 ft. 3 in.; larder, coal-cellar, beer-cellar, wine-cellar, china and dry store closet; a w.c., dust receptacle, a furnace-room to heat the conservatory above; a small work-room, 10 ft. 6 in. by 6 ft.; everything, in fine, required to rejoice the heart of a model housekeeper; and a billiard-room, 20 ft. by 16 ft. The two last mentioned are cut off from the kitchen department, by a door in the passage leading to that side of the house in which the offices are grouped together; and all are 11 ft. 4 in. high. On the ground floor are three good rooms, and a greenhouse, with steps leading out of it down to the garden. The dining-room and drawing-room are of the same dimensions, 20 ft. by 14 ft., only one lies across the ground plan, and the other along it, and both look out upon the fine prospect of the winding Thames, seen from the back of the house. The third room, which is the study, 14 ft. by 10 ft. 6 in., is in the front of the house. On the floor above these are four bedrooms, none less than 14 ft. long, one 15 ft. 6 in., and a bath-room; and in the attic are four more rooms, lighted by dormers that must command a lovely view, and a cistern and closet. All this accommodation is packed upon a ground space of 38 ft. by 33 ft. The front elevation may be described as having two gables, separated from each other by a receding centre, which contains the single mullioned windows that light the staircase on two stories, and is surmounted by a small dormer. The right-hand gable end contains the porch and door, and on the floor above one of the bedroom windows; the left-hand gable end has the study window on the ground floor and a bedroom window above. The apices of the gables have narrow slits. There are overhanging eaves and ornamental barge-boards. The west elevation contains the windows of the principal apartments. Here is another slightly advanced gable end, occupying nearly one half of the elevation, which contains a three-lighted window on the basement, another on the ground floor with transomed mullions, and a double-lighted window on the upper floor, besides a slit in the apex. A two-storied bay extends from the basement to light the billiard-room and dining-room on the floor above it; and over this is a double light to a bedroom, and a dormer on the roof. Dividing these two parts, gable end and bay, rise three single-light windows, one on each floor. The greenhouse is placed on the south side of the house; and below it is a door leading into the furnace-room. On the north side there is a flight of steps down to a door on the basement story. The four external walls are built of Lowestoft bricks, the inner walls of common bricks, some of the partitions of 4½-in. brick on the ground-floor, and the rest of timber quartering, as are all above stairs. The windows, dressings, string-courses, and door-jambs are of Box ground stone, Bath. The roof is covered with chocolate-red coloured Broseley tiles, placed in alternate bands of three escaloped and six plain, and the ridge has an ornamental tile cresting. Baltic timber and deals have been used for most of the woodwork, except the stairs, which are of American pitch-pine, with wainscot balusters and handrails. The cost of this house was 2,099*l.*, including gasfitting and oak framing to garden and gates, but excluding the ornamental painting, which was not executed till two years after the house was finished, and then cost 300*l.* The merit of this design consists in its repose, the provision for an orderly performance of domestic duties, its sanitary arrangements, and the amount of residential accommodation, viz.; three reception-rooms, besides the billiard-room, eight bedrooms and a bath-room, conservatory, and set of kitchen offices, in small compass.

The second house, erected by an architect for his own residence, is on a smaller scale, being built upon an area of 28 ft. by 25 ft., and costing but 705*l.* Its owner is Mr. George Truefitt, and its situation is in the neighbourhood of Camden-road, Holloway. Here we have no basement story, and only two day-rooms and four bedrooms, besides the offices. There is a porch, however, and a conservatory, which is heated by a gas-stove. The house stands on an angle formed by the junction of a road and a lane, and its most distinctive feature,—a double window on the angle of the first floor,—was designed to take advantage of the double prospect this circumstance afforded. The extension of London has, since the completion of this house, nearly neutralised this advantage. Additional size is contrived for the kitchen by a projection with a lean-to roof, the whole width of which is occupied by windows, to insure an ample supply of light,—a commodity that is often scarce in London kitchens. A glass-covered way leads from the house to the back garden, and, unadvisedly, we must submit, to a combined bath-room and w.c., and also gives access to the kitchen. Opposite to the kitchen door in this covered way is a back door leading into the lane. It is built of brick. The fronts are faced with washed stocks, with bands and window-arches of red bricks; and those employed in the rest of the house are common stocks. The roof is slated; and all the gutters are external iron eaves gutters with external downpipes,—an arrangement that has prevented any wet from coming in at any point. The woodwork is of Baltic fir and yellow deal, varnished without being previously stained. The hearths and skirtings, like the floor of the hall, are of ornamental tiles, and the dining-room and drawing-room fire-places are "coved" with the same cleanly contrivance. Both architects give a second villa, in the neighbourhood of their own designed by them, in which the leading characteristics of their respective modes of treatment recur.

We next turn to one of the Scottish residences. This is a house called Holmwood, designed by Messrs. A. & G. Thomson, Glasgow, and built on the top of the steep bank of a bend of the river Cart, about three miles south of that city. It illustrates, in a remarkable way, the difference between London and Glasgow prices. Here we have a handsome residence, built in an adaptation of the Greek style, with stone walls 2 ft. thick, and, where required, stone partitions of the same thickness, covering a site 70 ft. in frontage by 95 ft. in depth, containing three spacious day rooms, seven bedrooms, and two dressing-rooms large enough to be furnished with beds, besides a capital set of kitchen appointments, with laundry and washhouse, and a very large quantity of ornamentation, for 2,608*l.* 4*s.* 11*d.* Instead of the usual cubical mass, or centre with two wings, these architects have arranged their building to consist of several masses and several heights. There is no basement. The dining-room is only one story in height; the kitchen is also one-storied; but the greater part of the building is two stories high, and this is surmounted by a circular lantern which lights the staircase. In the front elevation there is the recessed entrance-doorway nearly in the centre, at the top of a flight of steps, with a square-headed window of the same height on either side of it, the one lighting the vestibule, the other a retiring-room; the dining-room with ornamental stone piers clear of the window to the right of this central group, all one story high; and to the left of the doorway is a two-storied group of building, consisting of a parlour on the ground-floor 18 ft. 6 in. by 17 ft., with a semicircular window, 10 ft. 8 in. in diameter, with columns standing clear of it all round, and a drawing-room above, 25 ft. by 17 ft., to which the flat roof of the projection serves as a balcony. Surmounting this, though recessed from the front elevation, is the circular lantern, which, as we have mentioned, lights the staircase, and in the rear is a wing, giving on to the dining-room and looking over its roof, containing six bed-rooms. In the extreme rear, but adjoining the main group, though furnished with a distinct roof, like all the rest of a low-pitch, covered with slates, with very broad overhanging eaves carried on ornamental cast-iron brackets, is the kitchen lighted with a range of five windows, placed somewhat high, below which, in the interior, stands the dresser. Away from the building, but indicated in the perspective, is a group of coach-house, stable, coachman's-house, greenhouse, cowhouse, &c., which cost an additional 1,009*l.* 19*s.* 6*d.* A great point in this design is the completeness of the details. The retiring-room, for instance, is furnished with hot and cold water, a looking-glass, sofa, clothes-pegs, and a water-closet opening out of it, lighted from the vestibule. The dining-room is provided with a recess for the sideboard and a serving-way from the butler's pantry, where there are communications both

* "Villa and Cottage Architecture. Select Examples of Country and Suburban Residences recently erected by various Architects." London: Blackie & Son, Paternoster-row; Glasgow; and Edinburgh.

with the kitchen and scullery, with the former by means of a hot closet, and with the latter by means of lifting-sashes. The store-closet is fitted with dresser, drawers, and shelves. The kitchen is partly surrounded with low lean-tos containing places for coals, roots, and a larder. It is a drawback to the general nicety of completeness to find five bed-chambers, or three bed-chambers, and two dressing-rooms accordingly as they might be required, on the ground-floor. The materials employed are irregularly coursed rubble freestone from Giffnock quarry, a mile distant from the site; a course of Caithness flagging to prevent damp rising; Quebec red-pine and St. John's yellow-pine; brick for some of the partitions; a cast-iron bressumer carries the wall over the opening between the parlour and its semicircular window; and encaustic tiles for vestibule and hall. We quote the description of the ornamentation of the drawing-room:—

"An enriched skirting, or dado, 26 in. in height, in wood, is carried round three sides of the room; between the window-lights, also at the sides of the doors and fire-place, and at intervals round the room, are placed square colonnettes, surmounted by a frieze, all of yellow pine, varnished, enriched with anthemions in mahogany. Six of the spaces between the colonnettes are further enriched by painted and gilded ornamentation; and the panels thus formed are filled with paintings, by H. Cameron, A.R.S.A., illustrating Tennyson's 'Idyls of the King.' The centres of the sides are occupied, in one case, by the fire-place, which has a white marble mantel-piece, having gilt incised ornament, and a mirror over it; and in the other case by the piano, over which is a mirror; whilst at the end opposite the window is another large mirror, with a decorated marble slab in front supported by chimeræ."

We pass on to notice one of Mr. Ewan Christian's rectories, that of Goldhanger, Essex. This house was built upwards of sixteen years ago at a cost of 2,000*l*., the contractor averring that he had under-estimated it by 200*l*. This is given as a plain substantial house, intended to last for generations, in which excellence of material and workmanship have been considered before ornamentation, in deference to the stringent law of ecclesiastical dilapidations. It is situated in a flat marshy district, in consequence of which circumstance the main body is raised about 4½ ft. above the highest part of the site, and terraces are formed on three sides of it. It is built, in the Domestic Tudor style, of red bricks, with the window openings and mullions and the arches and jambs of the west front of Caen stone, the heads and sills only in the other fronts being of stone. The copings are likewise of Caen stone; the plinth of Yorkshire stone. The roof is covered with plain red tiles, relieved with courses of ornamental tiles and ridge tiles. There is a basement sunk below part of the house, containing an ample supply of cellarage for beer, wine, potatoes, a larder, a dairy, and a furnace-room to the greenhouse, and an attic to part of it, containing two bedrooms, lighted by dormers, and a place for lumber. On the ground floor an open vestibule, in which the entrance door is placed, a hall with dining-room and drawing-room opening out of it, a large conservatory, 21 ft. square, so placed with reference to these two rooms that they may all be thrown into a suite; the principal staircase, study, w.c., butler's pantry, back-staircase, housekeeper's-room, store-room, kitchen, cook's pantry, scullery, fitted to serve also as a brewhouse and bakery, coal, wood, and ash places, and servants' w.c.s. Above stairs are seven bedchambers and two dressing-rooms, besides those mentioned in the attic, and a housemaid's closet. Mr. Christian also contributes a parsonage-house at Friday Bridge. There is a curate's house also shown, designed by Mr. Walker, and built at Gotham, Nottinghamshire. This is built entirely of common bricks, which in this locality are better than they are in some places, except bands and crosses of blue Staffordshire bricks placed ornamentally, and it covers an area of 32 ft. square. The plan is very compact and original. The entrance-door opens into a small passage, beyond which is an octagonal hall, in the centre of the house. The doors of drawing and dining rooms open right and left out of the passage; those of the study and kitchen out of the octagonal hall, in which is a third door opening to a space under the stairs, which communicates with the larder. There is a decorated conservatory beyond the study, which opens out of it. As the octagonal hall takes an angle off the drawing-room, and a window placed in the angle facing the junction of a street and lane, cuts off another, a bookcase is placed cornerways to make the room symmetrical. The dining-room is square, because the angle cut off by the octagonal hall is not shown; for that end of the room is partitioned off to form closets, one being a glass-closet in the dining-room, and the other, opening on the other side into the kitchen, a brush-closet. There are four bed-rooms on the upper floor, a lavatory, w.c., linen-closet, and housemaid's closet. The chimney-stacks here are a feature, for they are arranged to have no "pockets," every part of the interior being occupied by flues, or fire-place, or both. This admits of some corbelling on the exterior, which, with a stone shaft, 6 in. in diameter, with a base and neck-moulding and foliated capital, placed to carry the angle of the building out away by the window mentioned in the drawing-room, is about the only external ornamentation, except that afforded by the ingenious management of the brickwork. The contract for this house was 329*l*. 10s.; but, with the addition of a tesselated pavement for the hall, forming a w.c., cesspit, and drain, an ornamental fence wall, 80 lineal feet, and entrance-gate, the cost of the conservatory, a rain-water cistern, a wash-house, and a few trifles not allowed for in the contract, the price ultimately became 503*l*. 7s. 11d. To prevent the rise of damp, a layer of boiled tar and finely-washed Trent sand one-eighth of an inch thick was laid on the course of bricks forming the top of the external plinth.

The Manchester designs are Rosebank Villa, by Messrs. Speakman & Charlesworth; a double villa, by Mr. E. Walters; and the Sycamores, by Messrs. Paull & Ayliffe. The first of these is a brick-built Italian villa, with a Gothic roof, covering 61 ft. by 35 ft., not including any of the out-buildings and projections, containing three reception-rooms, seven bed-rooms, a bath-room, a smoking-room, and a set of kitchen offices, and finished with so much completeness as to include a lightning conductor for 2,833*l*. 12s. 4d. Mr. Walters's is a group of four villas, two and two of them being built back and back, so as to look, at a distance, as one house of considerable size. The two blocks are connected by a length of walling only. They were built in 1852 for 8,000*l*. or 2,000*l*. a-piece. For this sum there is an accommodation, consisting of three day-rooms, eight beds, allowing two for the nursery; two dressing-rooms and a bath-room, besides the usual kitchen offices, grouped upon an area of about 53 ft. square. The style of the exterior of these houses is also Italian, with high-pitched roofs. The Sycamores is a substantial-looking, and at the same time tasteful red-brick house, of modernised domestic treatment, curious for containing within it seven distinct levels of floors to fit in and contrive three day-rooms, six bed-rooms, and dressing-room, and set of kitchen offices, on an area of 60 ft. by 50 ft., exclusive of the ground occupied by the conservatory.

None of the clever Scottish architects have represented the national style. Their cottages are miniature Italian villas in too "rural" a style to compensate for the loss of the picturesque features that combinations of those given in some of the rare specimens of ancient Scottish buildings would have afforded. That they can retain some national features we perceive in the drawings of "Strath Cottage, Dumbarton," by Mr. Rochead, where there is a servant's box-bed shown built up in the kitchen like a closet. We could see this piece of retention dismissed with satisfaction. The style of this cottage, however, is less antagonistic to the character of the surrounding scenery and associations than some. It is built of freestone, with a little Jacobean detail, and covered with Highland slates. There are three day-rooms, four bed-rooms, two dressing-rooms, bath, kitchen, scullery, &c. The cost was 884*l*. 1s. 4d. A second cottage, by the same architect, erected at Govan, Renfrewshire, in the Tudor style, and costing a similar sum, is a remarkably happy composition. A cottage by Mr. Baird, erected at Roseneath, Dumbartonshire, as a residence for the parish schoolmaster, at a cost of 554*l*. 8s. 8d., would combine harmoniously and unpretentiously with any landscape, which is more than can be said of a rural Italian villa, built by him in the southern outskirts of Glasgow.

A somewhat fussy cottage ornée, half-timbered, with porch and conservatory constructed of fir, built in Essex, by Mr. Kendal, costing 1,830*l*.; a quiet modern detached house at Grantham, built by Messrs. Hine & Evans, costing 1,550*l*.; and a gabled and mullioned Yorkshire farm-house, pleasant, grey, and sedate-looking, as though Time and it had already some acquaintance, built in 1856, by Mr. Lamb, at Blubberhouses, near Bolton, incomparably superior to the square white boxes with square openings for windows, and another to match for a door in the centre of them, now frequently affected, are further varieties of buildings shown in this practical volume. The last mentioned, unlike every other example, has neither closet, cupboard, nor cellar. Neither is there a dairy shown. The kitchen, though, is admirably light and capacious, as all should be, but more especially so where it is still the custom of the country for the farmer's family and his domestics to take their meals together in it.

This is a volume that those about to build villa-residences or cottages may usefully study. The combined wit of nineteen architects can scarcely fail to furnish information that it will be a gain to them to acquire, and perhaps prevent them from being added to the list of those who if they set about building again would do so differently. Builders engaged in erecting such residences for sale will also find in it many valuable suggestions. There is an introductory preface, drawing attention to some of the building contrivances and structural arrangements that are most novel, such as different methods of using hollow bricks without interference with the bond, and modifications of sliding sashes, amongst which is one in which the lower sash descends in the same way that window-shutters are sometimes constructed to do. The great difference between London and country prices in some parts, the rise even in some towns, and the difference in London prices compared to those when many of the houses illustrated were built, is also pointed out. The present difference between London and Yorkshire or Scottish prices is estimated at 25 per cent. The owner of Worcester Lodge estimates the rise on London prices since his house was built to be nearly 30 per cent.; other architects have, however, quoted it at 15 per cent. In Southampton and its neighbourhood the rise is estimated as being fully 10 per cent. Architects' charges, too, are touched upon, and treated fairly:—

"These are a uniform per centage (5 per cent.) on the cost of the building, where the cost exceeds such an amount as 1,000*l*., where travelling expenses have not to be added, where several designs have not been made, where materials of a former building have not been used, and where the architect does not act as the surveyor or measurer, taking the quantities of materials and work from the drawings and specifications for the builder's use in estimating. The measuring-surveyor's charge usually comes in as part of the cost of the building; and in London, as indeed in many of the chief towns, it is considered most desirable that the 'surveyor' and the architect should be different individuals. There remain, therefore, to be added to the amounts stated as building cost not less than 5 per cent. upon each, as well as the travelling and other extras, being architect's expenses, if any. Also, should the services of a clerk of works be deemed necessary to secure a closeness of superintendence beyond what an architect will be bound to afford, and which may be true economy, even where the cost of a house falls within the limits kept in view in this publication, the weekly stipend will have to be paid by the owner of the building, although the clerk of works will act as the deputy or subordinate of the architect. In the case of a cost below 1,000*l*., the reader may consider the professional charges as having been matter of special agreement; for most architects would consider themselves ill paid at the rate mentioned for houses of the different classes below the 1,000*l*. cost."

Cobbett could not have given a clearer exposition of a vexed question.

"THE TRIUMPH OF CHRISTIANITY."

ANGRY controversy bristles up at the sound of the name of Gustave Doré. The works of the most prolific artist of our time afford ample scope for criticism and for contest. In almost every human production exists a greater or less proportion of what is objectionable, however it may be blended with what is admirable. An artist, therefore, whose enumerated works some years ago amounted to thousands, must have furnished materials for a whole library of attack, as, on the other hand, he may have offered a basis for a cyclopædia of praise. M. Doré has shown within the last month that he possesses two qualities which Englishmen are wont to treat with respect,—unexampled industry and unflinching pluck.

Certain writers who have sneered, and with some justice, at the "tricks" of this "clever book illustrator," must have rubbed their eyes at the boldness with which he has appealed to the judgment of the British public. When our streets are crowded with the busy life of the London season, and when all our exhibitions are open, M. Doré invades the West-End and opens an exhibition of his own. Thirty-four paintings, in very different styles of art, cover the walls of the German Gallery in Bond-street, all produced, we are told, within a few years. There can be no valid reason for refusing to this collection the same fair and impartial examination that we should

devote to a gallery of equal magnitude containing the works not of one, but of numerous artists.

There are four or five landscapes which, viewed from the proper distance, are actual transcripts of nature. "Morning and Evening in the Alps," and the "Effect of Sunset on the Summit of Mountains," give representations of gloom, and mist, and glancing mountain peaks that are familiar to the Alpine traveller, and that a knowledge of our own lake district, or of the Scotch or Irish mountain scenery, will prepare the visitor to admire. The "High Lake in the Alps (Valais)" is another of these coloured photographs of the sublime solitudes of nature.

In the illustration of "Vivien," the head of Merlin is the same as in the original sketches,—a painful sense of weakness unfitting him to be the representative of the mighty but genial wizard of song and romance. The face of Vivien, on the other hand, is a great advance on any former delineation of the repulsive character which it has pleased Mr. Tennyson to draw, the steady cat-like glance which she fixes on the magician being highly characteristic. But the length of her arms, and the size of her hands, are not to be endured.

Over the "Scenes from the Inferno" of Dante we should be content to draw the sponge of oblivion. The "Ascent of the Matterhorn" is rather fitted for an artist's portfolio than for an exhibition-room. The "Christ bound to the Column" is only a less painful failure than are almost invariably the modern, and most of the ancient, attempts to depict the divine sufferer. Isaiah and Jonah might have been left in Paris without diminishing the attractions of the gallery.

The door of a Spanish Cathedral, garnished by the usual fringe of disgusting beggars, and lighted up by the grace of the Spanish devotees, is a very accurate and correct bit of work. The effect of the painted windows in Seville Cathedral lights up an interior which contains a row of Spanish women, one of whom, in a velvet dress, is singularly graceful. Still more charming is a figure in the "Fortune-teller," where the sly leer of the old woman's eye, and the pose and aspect of the hulking vagabonds around are tinted by a brush dipped deep in local colour.

Apart from these pictures, and from the larger, and, as we should call it, half-finished, painting which gives name to the exhibition, are five or six specimens of a new style of work. They have not, or have only in the faces, the finish of fresco, but they have all the breadth which is peculiar to a style which it appears to be impossible to transplant in healthy and vigorous vitality to our climate. A question arises, which time alone can answer, as to the durability of this style. If it be durable as far as the endurance of the pigment is concerned, it must certainly attract and retain an unusual amount of the dirt that revels in such an atmosphere as that of London. Against both dangers we should wish to see how the production, not of water-glazing but of actual glass, can be made available without interfering with the effect of the painting. The propriety of this inquiry will be obvious from the remark that the walls, and some other portions of the background in these paintings, parts of the drapery (as well as the tree in the "Vivien"), seem to have been thrown on the canvas in the manner in which plasterers apply rough cast to a wall. The buildings are actually rougher to the touch than is real dressed stonework. But there is no denying the powerful effect that is produced. The walls in the "Gitana" and the Psaltery-player are actual pieces of illusion. There is a family of peasants which most people seem to prefer, because the greater finish is more in accordance with their experience of oil painting, but the faces of the old and young women knitting, life size, in one of these rough pictures are admirable, and the others only fail to please because the faces of the sitters are low, repulsive, or common place. The fault is in the selection, not in the execution. The "Gitana," though cursed with an ugly baby, has a face worthy of Murillo himself, and a tempting little dangling foot, as to which Mr. Doré seems to have committed the rare fault (as far as he is concerned) of having had it washed before he drew it.

The largest picture in the exhibition, some 10 ft. to 11 ft., by 6 ft. to 7 ft., we should call little more than a sketch, though a sketch of great power. Its chief defect is want of finish; its chief merit is life and motion. It takes a long period to get it well on the retina.

The "Triumph of Christianity" at the first glance recalls to the mind the "Last Judgment" of Michelangelo, or at least the method of treating that aweful subject which has become conventional among Italian artists. On a more minute examination the resemblance proves to be illusory, and the student of the picture becomes aware that he is in presence of an entirely original design. It is unnecessary here to enter into any discussion of the merits of allegoric painting in general. It is only intended to describe or to explain the present work of M. Doré.

The scene of the picture, instead of being laid, as usual in similar cases, in the region of the clouds immediately above the earth, is fixed in the higher or more distant regions of space, the earth being visible, as a planet, at such a profound depth below, as to have apparently shrunken to the dimensions of the moon when viewed from the terrestrial surface. Thus the motive, or text, of the painting may be appropriately sought in the words—"I saw Satan as lightning fall from heaven." The upper part of the picture is occupied by "a globe of circular light," as Milton expresses the angelic vision, consisting of a halo or glory of angels, surrounding Christ, bearing a symbolic cross. Two of the heavenly ministers are distinguished in the foreground, who may be taken to represent Counsel and Execution, or the angels of Light and of Power. The whole celestial hierarchy are unarmed, excepting with the sword of truth and the buckler of faith, and their white and flowing garments denote purity. The emblems of Hope are designedly absent from a scene which tells of hope fulfilled. Central and predominating by size in the lower part of the picture is a figure which may be regarded as the genius of Paganism, the dragon of the Apocalypse, or the Author of Evil himself. His gilded horns recall that worship of animal forms which prevailed in early superstitions. The employment of the artifices of idolatry, under every changing form, to augment the wealth and importance of the priesthood, is indicated by the golden collar which hangs out in such clear relief against the abyss. The ever-varying phases of idolatry and of hagiolatry are indicated by the play of the prismatic colours on the dragon wings and scales of the great enemy of spiritual religion, and in the consciousness of defeat expressed by his countenance and attitude may be seen a memorial of the words "Woe to the inhabiters of the earth and of the sea, for the devil is come down to you, having great wrath, because he knoweth that he hath power but for a short time."

Around and below the central dragon-winged Genius, the whole pantheon of African, Asiatic, and European mythology falls in helpless terror and confusion, and with that rapid motion that is characteristic of the figures of M. Doré. To the left of the spectator the Norse gods are feeding in the distance: Thor, and Odin, and Friga, from whom our Saxon ancestors named the days of the week, are flying in terror. Below them are the representatives of the ancient British worship,—the Druids with their golden sickles and their wreaths of sacred oak-leaves. To the right, Diana and Venus, Apollo in his quadriga, vine-wreathed Bacchus, and the whole population of the classical Olympus, may be distinguished by their well-known attributes. The great Roman Jove himself is upborne by the very person of the dragon, grasping his ambrosial locks in dismay, and, as it were, discharging his boltless thunder unawares. Behind him is a figure of Juno, his sister and his wife, and their father, Saturn, stretches forth his straight-shafted scythe in vain. The head of Mercury, marked by the Caduceus, calls attention below. The gods of ancient Egypt, Osiris and Isis, and the sacred bull Apis, with either the sphynx or the cat-god Pasht or Bubastis, are falling to the left. On the corresponding part of the picture are shown Nimrod and the Assyrian gods. The winged bulls of Babylon and Nineveh, lift their wings and stretch out their paws in quaint and utter dismay. The crown of Jupiter has fallen from his head; and far below the earth, shrouded in light, awaits the inroad of the host cast down from Heaven.

We are no blind admirers of M. Doré. We have taken the liberty, before now, to point out some of his most palpable faults; as instances of which, in the present exhibition, we may refer to the ignorance of the laws of flotation displayed in the position of the cradle of the infant Moses, impossibly shelved on a shoal in the Nile under the imaginative canopy of the angelic wings; and in that of the bier or barge which conveys the corpse of Elaine. The cradle certainly, and the barge probably, would have overturned.

But courtesy is due to the industrious and remarkable artist who has thus cast himself on the verdict of our public opinion,—a courtesy which, whilst it does not exclude an honest criticism, must gladly bow to the great merits of a man who, old in the number of his productions, is young in years, and young in the power and faculty of improvement.

ON LINCOLN CATHEDRAL.*

THE Architectural History of Lincoln Cathedral has been already very ably and completely described by two most competent persons, namely, Professor Willis and the Rev. Ayliffe Poole. I am not aware that Professor Willis's remarks, delivered at the meeting of the Royal Archæological Institute, at Lincoln, in 1848, have ever been published, or made available in any form to readers. Mr. Poole's were printed, together with a valuable appendix, comprising all the historical data bearing on the cathedral and connected with the see, in the volume of this Society's Transactions for 1857.

Mr. Poole's review of the building was based chiefly upon information derived from the light which this collection of historical facts threw upon the subject. It is in every respect a very interesting treatise. When, then, the committee of this Society did me the honour to invite me to lecture, I had to consider from what new point of view the subject could be again presented in an acceptable form.

It appears to me that I shall best serve the objects of this Society, which no doubt are continually to enlarge the circle of those who interest themselves in the noble series of monuments that contain the history of our national architecture, by endeavouring to draw from the building before us a few practical hints on the subject of church architecture generally, and by pointing out the excellent illustrations which different parts of the structure offer, of the several periods of this interesting history; and in doing this I intend craving the indulgence of the more learned, to address myself more particularly to those whose knowledge of the subject is less advanced, and who consequently stand in greater need of help and guidance in their studies.

Now, in order to render what I have to say useful, or indeed intelligible, to this portion of my audience, it is necessary that I should explain the few technical terms which I intend to use; and here I may remark, by way of parenthesis, that the fewer technical terms a lecturer uses to a mixed audience the better; and the more obvious and self-explanatory these terms are the better.

It is just twenty years ago, at the meeting, in fact, of the Royal Archæological Institute at Lincoln, in July, 1848, that I read in this room a paper on certain parts of Lincoln Cathedral, which formed the basis of a work that I subsequently published, in which I proposed what was then a new division and nomenclature of the styles of English architecture. As this terminology is the one which I intend to use here in the classification of the different works of Lincoln Cathedral, it is necessary that I should briefly explain it.

There is one division of the architecture of Europe on which all are agreed, that, namely, which separates the buildings of the Middle Ages into two classes, the first comprising all those buildings that were erected during the prevalence of the circular arch; and the second, those that were erected during the prevalence of the pointed arch. These two classes have been by common consent called Romanesque and Gothic.

Of English Romanesque buildings we have, again, two kinds, those which were erected before and after the Conquest, and which may therefore be conveniently called Saxon and Norman.

Of the buildings constructed during the Gothic period the most natural division is that which is indicated by the several changes of form, through which that prominent feature of every Mediæval building, the window, passed during that time.

For the first half-century after the complete adoption in all parts of buildings of the pointed arch the lancet window was alone

* By Mr. Edmund Sharpe, read at the meeting of the Lincolnshire Diocesan Architectural Society, June 17th.

used; during the next half-century, or thereabouts, the geometrical window, or that in the tracery of which that simplest of all geometrical figures—the circle—prevailed, was alone used. During the next half-century, the window-heads were characterised by that peculiarly English feature, flowing tracery, in which the ogee, or curve of contra-flexure, was conspicuous; and during the last or fourth period of Gothic art, straight lines, both horizontal and vertical, formed the leading lines of the tracery of windows.

I proposed, then, in the work to which I have alluded, to call these four periods of Gothic art, respectively, Lancet, Geometrical, Curvilinear, and Rectilinear,—terms which may be accepted as fulfilling the condition already laid down, and as being sufficiently self-explanatory.

But there remains to be noticed a period during which a large number of buildings were erected, of great importance and great originality, to the characteristic features of which attention has not, even yet, perhaps, been sufficiently directed; I mean those that were erected during that prolonged struggle carried on between these two rival principles, the circular and the pointed form of arch; in fact, during the interval that occurred between the first appearance of the pointed arch and the final disappearance of the circular arch. To this interval I gave the name of the Transitional period, a term that has become now almost universally adopted, as applied to these buildings.

We have thus seven periods of the history of church architecture in Great Britain, to the duration of which I ventured to assign, twenty years ago, the following limits, which subsequent experience and study have not, in the meantime, led me in any respect to alter.

	A.D.		A.D.
Saxon Period	...	—	1066
Norman Period	1066	—	1145
Transitional Period..	1145	—	1190
Lancet Period.....	1190	—	1245
Geometrical Period..	1245	—	1315
Curvilinear Period...	1315	—	1360
Rectilinear Period ...	1360	—	1500

I have now only three other technical terms to define in order to enable me to at once enter, without further explanation, upon the consideration of Lincoln Cathedral.

Almost all the great cathedral and conventional churches of this country are divisible in their entire length into three parts, forming the three branches of the Latin cross, — namely, choir, transepts, and nave.

They are also generally divisible laterally into three portions,—namely, choir or nave, and north and south aisles.

Vertically, also, this tripartite division is again found; the entire elevation of the main interior walls being usually divided into three portions or stories, separated and defined by horizontal string-courses.

These three stories I have named—I. the ground story; II. the blind story, from its being usually dark, and opening into the roof of the side-aisle; and III. the clearstory,—terms which also sufficiently explain themselves.

Now, it will strike every one who looks down the nave of a Mediæval building, that it consists of a number of exactly similar compartments, placed side by side and tied together by the horizontal lines or string-courses which separate their three stories. The same remark applies as well to the outside of these buildings.

For the purpose, then, of comparing the architecture of one structure with that of another, with a view to trace the progress of the art of building through the Middle Ages, it will be sufficient if we take one or two of these compartments and place such a representation of what may be called the *main idea* of a building, side by side with two similar compartments of another, or of several other buildings.

Time will not permit me to lay before you in detail the characteristic features which distinguish these six periods of Christian architecture from one another. They are, however, sufficiently obvious to all who have paid any attention to the subject.

And now let us proceed to consider how Lincoln Cathedral serves to illustrate the history of church architecture; to which of its several periods its different parts belong; and how far we may be able, by its works, to trace the progress of Christian art in this country during the Middle Ages.

Professor Willis was the first to apply colour to the ground-plans of churches, for the purpose of indicating the different periods of their construction. He applied his colours indiscriminately, and simply with a view to distinguish one part of a building from another. It appeared to me, some time ago, that this use of colour might be carried a point further; and, in fact, made much more useful, by attaching a fixed signification to the employment of different colours, and by causing a specific colour always to represent a specific period of architecture; and it occurred to me that no better basis could be taken for such an application of colour than the prismatic spectrum itself, which, in a twofold sense, is peculiarly adapted to represent the gradual progress of art in the buildings of the Middle Ages; first, because, as in church architecture, that progress was so regular and so gradual as to be almost imperceptible, and to render it difficult for us to draw any exact line of demarkation between the buildings of one style and those of another, or to enable us to say, for example, where Norman art ends, and where English art begins; so in the prismatic spectrum it is difficult to say where one colour ends and where another begins. Yet, inasmuch as we are obliged, for descriptive purposes, to call certain portions of this blended whole blue, green, yellow, and red, so are we, for the same reason, under the necessity of selecting and characterising in the same manner certain portions of the history of this continuous art, and of designating those parts by some such specific terms as those above proposed.

And, in the second place, this adaptation of the prismatic spectrum to our wants in this respect appears to me to be a peculiarly happy one, inasmuch as our national architecture, rising out of the deep gloom of debased Pagan art in the dark age of barbarous invasion, is thus fitly represented as brightening gradually into the glory and refulgence of Christian art in the Geometrical period of the thirteenth century, and as deepening again in its descent through the three following centuries, into the dark age of Pagan revival in the seventeenth.

I have therefore already for some time, for my own purposes, made use of the following selection of colours to indicate, on the ground plans of churches, the particular dates of the construction of their different parts; and I think I can safely recommend it as a convenient one for general use.

	A.D.		A.D.	
Norman	1066	—	1145	... Black.
Transitional	1145	—	1190	... Blue.
Lancet	1190	—	1245	... Green.
Geometrical	1245	—	1315	... Yellow.
Curvilinear	1315	—	1360	... Orange.
Rectilinear.....	1360	—	1500	... Crimson.

The ground-plan of Lincoln Cathedral behind me, and the elevation of its grand west front, above it, are coloured after this fashion; and you will see at once that every one of the six periods of English architecture is more or less represented in both.

Norman Period.

For all speculations as to the character and extent of the first Norman cathedral erected at Lincoln by Remigius, the first Norman bishop, I must refer you to Mr. Poole's treatise. What is certain is, that, with the exception of what remains of it at the west end, it has altogether disappeared. This fragment, however, is of the highest interest. It has been respected and preserved by all subsequent builders, and still forms an integral and very important portion of the west front. The outline of its simple and unadorned masonry is easily to be traced on the west elevation, and its massive proportions are as clearly visible on the plan.

That we see in what is left the entire breadth of the west front of the original church of Remigius, commenced probably about 1070, there is no doubt whatever. How this design was terminated above and on the north and south sides, is a matter of speculation. I think, however, that the solution of this problem is not so difficult a one as might at first sight be supposed. We have not time to enter upon it here to-day; but, if I am correct in the supposition which I have formed, and which involves the existence originally of a single western tower in place of the two western towers which actually exist, the opinion which Professor Willis and Mr. Poole appear to entertain, that these towers were built either in restoration or in continuance of Bishop Remigius's design, is incorrect.

That these two towers, and other works to be noticed at the west end, were built after the second fire, which is recorded as having consumed the entire church in 1141, there is little or no doubt. They exhibit, up to the top of their third story, in all their ornamental details, the characteristic features of the very date. They were flanked on the north and south sides with richly ornamented projecting gables, which still remain; and on their west side also with gables of probably similar design, which have been removed. But the weather-mouldings of these gables, still to be seen under the roof of the later work of the Lancet period, reveals to us the singular fact that the apex of both of these gables, which corresponded with the centres of the two large circular side arches of the west front of Remigius, were not in the centres of the two towers, which latter were not, in fact, placed symmetrically with the earlier work of the west front.

How these and other discrepancies of this second Norman design, which could not have been in harmony with that of the first, behind which it stood, were reconciled, we have no present means of knowing; but we may naturally conclude that they furnished the reasons which induced the gifted architect who marked these irregularities, and combined the works of these different periods into one harmonious whole, to erect, towards the close of the Lancet Period, the noble west front or screen, which still remains to us as it left his hands.

Besides these two western towers, built at the very close of the Norman period, two other works of this date remain in the west front. The first is the circular arcade immediately above the plain walling of Remigius's front on each side of the central arch; the second is the great western doorway of the nave, which exhibits, in the five richly ornamented orders of its circular archway, the latest features of the period to which it belongs.

Transitional Period.

Closely following the last-mentioned work, but of clearly defined Transitional character, are the two other western doorways; those, namely, of the north and south aisles of the nave, that on the north side being of slightly earlier character than that of the south side; the limits of time within which all the three doorways were designed and built probably not exceeding ten years.

These two later doorways are amongst the most interesting and valuable remains of the entire structure. Although to be reckoned amongst the earliest works of the Transitional period, they contain not one of the characteristic features which distinguish the works of the Normans, either in this country or in their own; nor does their ornamentation resemble that of works of any other country of Europe of the same date. They prove to us, in fact, along with numerous other similar works in all parts of the kingdom, the existence in England, at this time, of a school of native artists who were not only completely emancipated from those influences which had governed the designs of buildings for the previous eighty years of Norman rule in this country, but who were able to design and to carry out their works with an originality of thought, a fertility of invention, and a perfection of execution, which most justly entitle them to our especial notice, as well as to separate classification. Although they were in reality the earliest works of English design, properly so called, in the country, we are unable to call them "Early English," from the fact that this term has been applied to, and generally received as indicating, the works of the subsequent or Lancet period; neither, although belonging to that period in which the Pointed arch was first used in this country, can we call them "First-Pointed;" first, because that designation was also intended to apply to the works of the Lancet period; and, secondly, because in this really First-Pointed period the whole of the arches of decoration are usually circular, as indeed are those of the doorways in question. Until, then, we are supplied with a better term I shall continue to apply to them and to similar works that denominative expression which so aptly characterises the transitional nature of those intermediate works which were constructed during the prevalence of both forms of arch (used, as the latter were, simultaneously, but discriminately, in the same building), and which occupied, in point of time, the latter half of the twelfth century.

Lancet Period.

We have no work in the kingdom of genuine Lancet character to which we can attribute an

earlier date than the eastern transept and the choir of Lincoln Cathedral. We know, from undoubted documentary testimony, that they were commenced about the year 1190 by Bishop Hugh de Grenoble, and were on the point of completion at his death in the year 1200. The dignified simplicity of the whole of this work, and the vigorous boldness which marks the design of all its details, its simply clustered piers, the single vaulting shaft descending in their front in an unbroken line from the clear-story to the floor, their spreading capitals and projecting foliage, the bold sweep of their over-hanging bands and circular bases, the deeply-moulded pier arches and vaulting ribs, and the tall single Lancet windows; above all, the largeness of treatment and the vigorous originality of conception with which the entire design has been conceived and executed, demand our highest admiration, and place this grand work clearly at the head, as well in point of time as of excellence, of the works of the Lancet period.

It is not to be wondered at that so noble an example should be rapidly followed by works designed in the same spirit. Within the next ten years several important buildings of similar character were begun; and even before the commencement of the thirteenth century this new fashion of building, the second characteristic type of English art in church architecture, had become firmly established in this country.*

* To be continued.

A PARISH STATUE.

A STATUE of the late Richard Cobden, chiselled out of Sicilian marble by Messrs. Wills, has been set up in High-street, St. Pancras, a good site, where several roads converge, and on Saturday last it was formally opened. The committee met first in the vestry-hall, where, some 30*l.* being needed to meet the total cost,—about 320*l.*, if we understood rightly,—this was gathered in small sums, and gave a twopenny-halfpenny character to the opening proceedings that, truth to say, was not removed by what followed. The crowd that had gathered round the site was certainly the shabbiest crowd we have looked on for some time, and on the platform there was scarcely a face known out of the parish. The borough members, Mr. Harvey Lewis and Mr. Thomas Chambers, were there, of course, and did well what they had to do. But the statesman element and the artistic element were otherwise conspicuous by their absence. The statue is very unpicturesque, not to say disagreeable. Cobden, as we remember him, was a grave, earnest, and somewhat straight-haired man: the curly whiskers and thoughtless head here presented do not recall him to us. The pedestal, too, is coarse and common.

If the energetic coroner who was present had impannelled a jury of artists from some of the neighbouring studios to sit upon the marble body, the verdict could scarcely have been any other than "Found Murdered." We regret greatly to have to speak thus. The notion was a good one,—highly creditable to the gentlemen who conceived it and have worked to carry it out; but they have not taken proper advice, and the result is not satisfactory. The metropolis has yet to call on art to do proper homage to the memory of Richard Cobden.

ROYAL BOX, CRYSTAL PALACE.

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The remarkable popularity of the Prince of Wales was strikingly shown on this occasion. On the party returning to the front of the boxes after dinner, when "God Bless the Prince of Wales" had been sung with great spirit by Mr. Cummings and the choir, the vast audience and the occupants of the orchestra rose and cheered again and again, the ladies waving their handkerchiefs tumultuously. The effect, as seen from the box, under a blaze of light, was fine in the extreme.

The fireworks on this occasion were particularly good. If we had not known that Dr. Price, inspired by seeing what is done in Rome in this way, had been bringing his chemical knowledge to bear upon the subject, we should have supposed them the work of a descendant of that eminent pyrotechnist not long dead who, delighted by the inscription on the tomb of the composer Purcell,—

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Joking apart, however, the *fête* was a great success.

A NATIONAL SYSTEM OF IRRIGATION.

A PETITION to Parliament on this subject is being signed in many parts of the country by landowners, farmers, bankers, merchants, and others, showing that the present drought throughout the country is creating anxiety, and that its effect upon the grass, clover, and permanent pasture and green crops is likely to be very serious, and productive of great national loss; that the Government "agricultural returns" for 1867 show that the extent of land under grass, clover, and permanent pasture and green crops exceeds 32 millions of acres, while that under corn crops does not reach twelve millions; that the petitioners believe a national system of irrigation to be practicable over a great extent, if not the whole, of this large area, and that if established it would very greatly increase the production of the country, steady prices, and relieve the minds of the public from the alarming apprehension which the recurrence of such droughts as the present occasion, while it might be made to subserve the further purpose of preventing great damage from floods; that in countries where national systems of irrigation have been adopted the results have been very beneficial, and other countries are following the example. The petitioners therefore pray that inquiry be made as to the practicability of establishing a system of national irrigation.

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TREES AND SHRUBS AND SEATS FOR CROWDED STREETS.

THE vegetable creation consists chiefly of carbonic acid gas which it has absorbed from the atmosphere. The organs of trees, shrubs, and plants, imbibe air during the day, while the light of the sun is most active and vivifying, and at night their functions in this respect are largely suspended. They take in and retain the carbonic acid gas as their food, and return the oxygen gas pure to the air.

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"THEY manage these things better in France," is a hackneyed phrase which most thoroughgoing Englishmen are fonder of quoting when some opportunity of contradicting it presents itself than at other times. Yet there are occasions when no thoughtful traveller can avoid regretting that institutions which he has seen in active working on the Continent have not their parallels in this country, or have those parallels hampered by that clumsy or pedantic inefficiency which is painfully obvious in much of our official work at all times, but is made now and then doubly clear by contrast.

A comparison of one of the public establishments of Paris with what most closely corresponds to it in this country is about to occupy our attention for a moment, and we hope to show that such comparison is neither uninstructive nor ill-timed; and that in the case now under consideration an institution following the Paris model would not be extremely difficult, nor its execution so problematical or unlikely as, for instance, the idea of our remodelling London after the fashion of M. Haussmann must always prove should it ever be proposed for our acceptance.

A visitor to Paris, whether his taste leads him to seek out what little still remains of the monuments of the Mediæval city or whether he prefers to study the scientific work of the present generation and to investigate the practical side of French civilization, will be sure to betake himself to the Conservatoire des Arts et Métiers. Here he will find standing a portion of the buildings of the Royal Priory of St. Martin-in-the-Fields (Saint Martin des Champs), a foundation dating back to the year 1060. Occupying the venerable and very beautiful buildings still left, together with certain more modern galleries adjoining, which themselves stand upon ground formerly covered by portions of the Priory, he will find books, models, and specimens of the scientific inventions, the arts, and the manufactures of the most modern age of France, together with all the machinery of classes, lectures, students, and the various appliances of modern scientific study.

The buildings of the Conservatoire occupy a frontage of something like 600 ft.; but the most important parts of the structure enjoy the advantage of being remote from the noise of any public thoroughfare. The modern part of the establishment presents on the principal floor a range of galleries, not far, if at all, short of 800 ft. in length, with almost the same amount of space on the floor below, appropriated to a museum and to spacious ranges of offices, with lecture theatres, residences for officers, and other administrative buildings appended. Connected with these galleries is the very beautiful thirteenth-century refectory, a building about 38 ft. wide by 168 ft. long, and very lofty, divided in its length into eight bays. This has been restored, and in this noble hall the library is installed. Not far off stands the church of the priory. Of this building the fifteenth-century nave has been very extensively repaired,—in fact, rebuilt in part,—and is occupied, in strange contrast to its original appropriation, by specimens of hydraulic machinery. The apse, which till recently had been little meddled with in the way of restoration or appropriation to modern purposes, is an uncommonly beautiful specimen of transitional Romanesque work.

There is something more than ordinarily striking in this blending of the best workmanship of the past with the best work of the present; but if we have allowed ourselves to dwell upon it at present, it is because this circumstance is not only striking,—it is eminently suggestive. Science is the glory of modern Europe, just as much as architecture and the cognate arts were of Mediæval; and if we would do the best that we can in that race for supremacy in the arts of peace upon which we are now embarked, we shall strain every nerve to excel in the practical cultivation of science. We need now, more than ever before, to train our artificers and our engineers to the same pitch of individual and collective skill which, as the best buildings of the Middle Ages fully show, was so uniformly kept up among the masons, and carvers, and architects of the best period of the Middle Ages. It is to aid in effecting this object that the Paris Conservatoire is established.

Of the collections forming the museum, lodged in the galleries we have described, the following is a brief summary:—Hydraulic, optical, and acoustical scientific instruments, specimens of the arts of reproduction, *i.e.*, typography, lithography, photography, &c.; ceramic work, chemical products, models of the art of construction, models of apparatus for heating and lighting, weights and measures, lathes, tools, textile fabrics, agricultural implements and products, models illustrative of geometrical mechanics and of descriptive geometry, models of machinery and constructions relative to railways, models of machinery, motive power, engines of various sorts, machines for various purposes of manufacture; ancient and modern globes, maps, and relief maps; apparatus for experiments in physical science, electricity, galvanism, sound, &c.; specimens of horology; and a variety of machines, especially hydraulic machines, in motion. Of these varied groups of objects, the very extensive collections of models of machinery, most of them to the same scale, and excellently well placed and lighted, and easily approached, are eminently instructive and suggestive; while many of the collections of actual instruments or machines contain individual specimens of skill or patience famous in the history of science, and having an historical interest quite apart from their value as links in a chain of scientific steps.

If the galleries are richly filled, the noble library of scientific books equally claims our admiration. Appended to this library is a collection of drawings to scale of all the most valuable and most recent machines manufactured, available for purposes of study to inventors, mechanics, and others.

Fifteen professorships are attached to the Conservatoire, and the classes and lectures include a certain number of public gratuitous courses of evening lectures on subjects upon which it is considered desirable that some degree of scientific training should be readily accessible to those who cannot afford to pay for the instruction they need.

Such, in some of its features, is the Conservatoire des Arts et Métiers—a noble group of buildings, to house a rich museum and useful public library; and a staff of professors, including many of the best-known names in science in their several branches. This machinery is devoted to the promotion of the scientific education of the rising race of French engineers, machinists, and artificers, or, in short, to what we are beginning to know by the title—not, perhaps, strictly correct, but now well understood—of technical education.

Where shall we turn to find an establishment of an analogous character in England? There exists such an establishment, and it is with the hope of possibly aiding to win for it that very moderate degree of encouragement, or at least of forbearance, on the part of the Government, which it needs to render it prosperous, that we have drawn this parallel. We allude to the museum and library of her Majesty's Commissioners of Patents.

The Patent Museum and Library contain between them the germs—nay, not merely the germs, but most of the materials—of an institution as useful, as complete, and as famous as the Paris Conservatoire, but present every possible contrast in their situation, the mode of their display, and the degree of support afforded by the Government to their more fortunate rival across the Channel. The library and the museum are, for example, separated by a distance of from two to three miles,—the former being housed in the recently-added upper story of a building in Chancery-lane, devoted to the other purposes of the Commissioners of Patents, and in a good position for its purpose; the latter being tolerated rather than taken care of in a forgotten and still lingering fragment of the old "boilers" building at South Kensington.

The museum has been formed mainly through the exertions of the present able clerk to the Commissioners of Patents (Professor Woodcroft) and to no inconsiderable extent, we understand, the nucleus of it was provided by his private collection of models and other objects valuable to students of mechanics. It now includes the most interesting objects known in the archæology of mechanics, if such a word exists. The "Rocket," Stephenson's successful effort, which established the locomotive in its position as the iron horse, furnished new, and, till then, impossible resources for commerce. Earlier still is the first complete engine of Bolton & Watt, showing the dawn of that revolution in which the introduction of the locomotive was the most important step. The earliest steam-engine, too, ever used on a steam-boat, is to be found in this museum; also the old wooden printing-press of Franklin's day, presented by Messrs. Wyman. These, and many other such venerable monuments of our mechanical triumphs, are there themselves; and by their sides are numbers of the most exquisite and elaborate models, showing how the same leading principles have been applied, elaborated, and carried to their further results in all the infinite mechanical wonders which British ingenuity has produced for the railway and the steamship, the spindle and the loom, the factory, and even the farm.

This collection is housed so badly, that it can be seen only with the greatest inconvenience; and yet, notwithstanding its remote situation, at South Kensington, and the great disadvantages under which it can alone be studied, it has been visited during the space of about eleven years that it has been open, by more than a million and a quarter of persons.

The Patent Library, situated as we have stated in the heart of London, is an eminently practical institution in its scope and intention. It contains printed copies of all the specifications of patented inventions, together with the elaborate indices, abstracts, and other guides which the commissioners have caused to be prepared for the service of students, inventors, and others.

A Reference Library upon all subjects connected with science and the industrial and fine arts was proposed to be collected round this nucleus, and perfectly free and unrestricted access to be given to all who desired to consult it. As far as it has been possible, this plan has been carried out. The library contains now about 50,000 volumes, selected with judgment; and it includes almost all the scientific periodicals. The access is, and always has been, perfectly free to every person applying and entering his name in a book, and the readers number about 16,000 annually.

The new room, though recently constructed, is full, or very nearly so, and any large increase of books would render it necessary to do what had to be done for long previous to this room being built,—keep the books least often wanted in packages in adjoining stores, whence they were fetched when wanted.

These institutions ought never to have been placed apart; they ought to be brought together, to be well housed, and to be fostered by liberal grants; nor is it necessary for this purpose to expend the ordinary revenue of the country. The annual surplus from the fees and stamps paid on patents amounts to from 40,000*l.* to 50,000*l.* a year. It was the intention of the Legislature when last the patent law was the subject of legal enactment, that so much of this surplus as was needed should be available for purposes such as those of the patent museum; and should this intention ever be loyally carried out, an extremely short time would suffice to convert these two divided and cramped institutions into branches of a noble establishment equally fitted with the Paris Conservatoire to minister to the education of those upon whom England depends for her future greatness.

The country is gradually awaking to the necessity that our artisans should be instructed in at least the elements of such sciences as bear upon the arts they practise, and that those who are to guide and direct them should be men of the highest scientific culture attainable. Yet no better provision than what we have described has yet been made for supplying reference books and models to our students of mechanics. We have repeatedly pointed out in this journal the need of appliances to forward the great and pressing work of technical education. We recognise the great services to the cause of decorative art rendered by the Science and Art Department, and the solid advantages given to a limited extent by the Government School of Mines. We were among the first to point out the value of Mr. Whitworth's noble and opportune establishment of scholarships; but all these things are not enough: we want more and more complete means and appliances, and we consider that nothing could tend more to this end than the uniting of the museum and library of the Commissioners of Patents, and the so completing them to the full scope of their original intention, that they should serve as a great storehouse of knowledge for all students of science, inventors, and artificers; and, in fact, that they should render the same services to science which the British Museum does to literature.

A society, the list of vice-presidents and supporters of which includes a large number of well-known names in the scientific and

earlier date than the eastern transept and the choir of Lincoln Cathedral. We know, from undoubted documentary testimony, that they were commenced about the year 1190 by Bishop Hugh de Grenoble, and were on the point of completion at his death in the year 1200. The dignified simplicity of the whole of this work, and the vigorous boldness which marks the design of all its details, its simply clustered piers, the single vaulting shaft descending in their front in an unbroken line from the clear-story to the floor, their spreading capitals and projecting foliage, the bold sweep of their over-hanging bands and circular bases, the deeply-moulded pier arches and vaulting ribs, and the tall single Lancet windows; above all, the largeness of treatment and the vigorous originality of conception with which the entire design has been conceived and executed, demand our highest admiration, and place this grand work clearly at the head, as well in point of time as of excellence, of the works of the Lancet period.

It is not to be wondered at that so noble an example should be rapidly followed by works designed in the same spirit. Within the next ten years several important buildings of similar character were begun; and even before the commencement of the thirteenth century this new fashion of building, the second characteristic type of English art in church architecture, had become firmly established in this country.*

* To be continued.

A PARISH STATUE.

A STATUE of the late Richard Cobden, chiselled out of Sicilian marble by Messrs. Wills, has been set up in High-street, St. Pancras, a good site, where several roads converge, and on Saturday last it was formally opened. The committee met first in the vestry-hall, where, some 30*l.* being needed to meet the total cost,—about 320*l.*, if we understood rightly,—this was gathered in small sums, and gave a twopenny-halfpenny character to the opening proceedings that, truth to say, was not removed by what followed. The crowd that had gathered round the site was certainly the shabbiest crowd we have looked on for some time, and on the platform there was scarcely a face known out of the parish. The borough members, Mr. Harvey Lewis and Mr. Thomas Chambers, were there, of course, and did well what they had to do. But the statesman element and the artistic element were otherwise conspicuous by their absence. The statue is very unpicturesque, not to say disagreeable. Cobden, as we remember him, was a grave, earnest, and somewhat straight-haired man: the curly whiskers and thoughtless head here presented do not recall him to us. The pedestal, too, is coarse and common.

If the energetic coroner who was present had impannelled a jury of artists from some of the neighbouring studios to sit upon the marble body, the verdict could scarcely have been any other than "Found Murdered." We regret greatly to have to speak thus. The notion was a good one,—highly creditable to the gentlemen who conceived it and have worked to carry it out; but they have not taken proper advice, and the result is not satisfactory. The metropolis has yet to call on art to do proper homage to the memory of Richard Cobden.

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A comparison of one of the public establishments of Paris with what most closely corresponds to it in this country is about to occupy our attention for a moment, and we hope to show that such comparison is neither uninstructive nor ill-timed; and that in the case now under consideration an institution following the Paris model would not be extremely difficult, nor its execution so problematical or unlikely as, for instance, the idea of our remodelling London after the fashion of M. Haussmann must always prove should it ever be proposed for our acceptance.

A visitor to Paris, whether his taste leads him to seek out what little still remains of the monuments of the Mediæval city or whether he prefers to study the scientific work of the present generation and to investigate the practical side of French civilization, will be sure to betake himself to the Conservatoire des Arts et Métiers. Here he will find standing a portion of the buildings of the Royal Priory of St. Martin-in-the-Fields (Saint Martin des Champs), a foundation dating back to the year 1060. Occupying the venerable and very beautiful buildings still left, together with certain more modern galleries adjoining, which themselves stand upon ground formerly covered by portions of the Priory, he will find books, models, and specimens of the scientific inventions, the arts, and the manufactures of the most modern age of France, together with all the machinery of classes, lectures, students, and the various appliances of modern scientific study.

The buildings of the Conservatoire occupy a frontage of something like 600 ft.; but the most important parts of the structure enjoy the advantage of being remote from the noise of any public thoroughfare. The modern part of the establishment presents on the principal floor a range of galleries, not far, if at all, short of 800 ft. in length, with almost the same amount of space on the floor below, appropriated to a museum and to spacious ranges of offices, with lecture theatres, residences for officers, and other administrative buildings appended. Connected with these galleries is the very beautiful thirteenth-century refectory, a building about 38 ft. wide by 168 ft. long, and very lofty, divided in its length into eight bays. This has been restored, and in this noble hall the library is installed. Not far off stands the church of the priory. Of this building the fifteenth-century nave has been very extensively repaired,—in fact, rebuilt in part,—and is occupied, in strange contrast to its original appropriation, by specimens of hydraulic machinery. The apse, which till recently had been little meddled with in the way of restoration or appropriation to modern purposes, is an uncommonly beautiful specimen of transitional Romanesque work.

There is something more than ordinarily striking in this blending of the best workmanship of the past with the best work of the present; but if we have allowed ourselves to dwell upon it at present, it is because this circumstance is not only striking,—it is eminently suggestive. Science is the glory of modern Europe, just as much as architecture and the cognate arts were of Mediæval; and if we would do the best that we can in that race for supremacy in the arts of peace upon which we are now embarked, we shall strain every nerve to excel in the practical cultivation of science. We need now, more than ever before, to train our artificers and our engineers to the same pitch of individual and collective skill which, as the best buildings of the Middle Ages fully show, was so uniformly kept up among the masons, and carvers, and architects of the best period of the Middle Ages. It is to aid in effecting this object that the Paris Conservatoire is established.

Of the collections forming the museum, lodged in the galleries we have described, the following is a brief summary:—Hydraulic, optical, and acoustical scientific instruments, specimens of the arts of reproduction, *i.e.*, typography, lithography, photography, &c.; ceramic work, chemical products, models of the art of construction, models of apparatus for heating and lighting, weights and measures, lathes, tools, textile fabrics, agricultural implements and products, models illustrative of geometrical mechanics and of descriptive geometry, models of machinery and constructions relative to railways, models of machinery, motive power, engines of various sorts, machines for various purposes of manufacture; ancient and modern globes, maps, and relief maps; apparatus for experiments in physical science, electricity, galvanism, sound, &c.; specimens of horology; and a variety of machines, especially hydraulic machines, in motion. Of these varied groups of objects, the very extensive collections of models of machinery, most of them to the same scale, and excellently well placed and lighted, and easily approached, are eminently instructive and suggestive; while many of the collections of actual instruments or machines contain individual specimens of skill or patience famous in the history of science, and having an historical interest quite apart from their value as links in a chain of scientific steps.

If the galleries are richly filled, the noble library of scientific books equally claims our admiration. Appended to this library is a collection of drawings to scale of all the most valuable and most recent machines manufactured, available for purposes of study to inventors, mechanics, and others.

Fifteen professorships are attached to the Conservatoire, and the classes and lectures include a certain number of public gratuitous courses of evening lectures on subjects upon which it is considered desirable that some degree of scientific training should be readily accessible to those who cannot afford to pay for the instruction they need.

Such, in some of its features, is the Conservatoire des Arts et Métiers—a noble group of buildings, to house a rich museum and useful public library; and a staff of professors, including many of the best-known names in science in their several branches. This machinery is devoted to the promotion of the scientific education of the rising race of French engineers, machinists, and artificers, or, in short, to what we are beginning to know by the title—not, perhaps, strictly correct, but now well understood—of technical education.

Where shall we turn to find an establishment of an analogous character in England? There exists such an establishment, and it is with the hope of possibly aiding to win for it that very moderate degree of encouragement, or at least of forbearance, on the part of the Government, which it needs to render it prosperous, that we have drawn this parallel. We allude to the museum and library of her Majesty's Commissioners of Patents.

The Patent Museum and Library contain between them the germs—nay, not merely the germs, but most of the materials—of an institution as useful, as complete, and as famous as the Paris Conservatoire, but present every possible contrast in their situation, the mode of their display, and the degree of support afforded by the Government to their more fortunate rival across the Channel. The library and the museum are, for example, separated by a distance of from two to three miles,—the former being housed in the recently-added upper story of a building in Chancery-lane, devoted to the other purposes of the Commissioners of Patents, and in a good position for its purpose; the latter being tolerated rather than taken care of in a forgotten and still lingering fragment of the old "boilers" building at South Kensington.

The museum has been formed mainly through the exertions of the present able clerk to the Commissioners of Patents (Professor Woodcroft) and to no inconsiderable extent, we understand, the nucleus of it was provided by his private collection of models and other objects valuable to students of mechanics. It now includes the most interesting objects known in the archæology of mechanics, if such a word exists. The "Rocket," Stephenson's successful effort, which established the locomotive in its position as the iron horse, furnished new, and, till then, impossible resources for commerce. Earlier still is the first complete engine of Bolton & Watt, showing the dawn of that revolution in which the introduction of the locomotive was the most important step. The earliest steam-engine, too, ever used on a steam-boat, is to be found in this museum; also the old wooden printing-press of Franklin's day, presented by Messrs. Wyman. These, and many other such venerable monuments of our mechanical triumphs, are there themselves; and by their sides are numbers of the most exquisite and elaborate models, showing how the same leading principles have been applied, elaborated, and carried to their further results in all the infinite mechanical wonders which British ingenuity has produced for the railway and the steamship, the spindle and the loom, the factory, and even the farm.

This collection is housed so badly, that it can be seen only with the greatest inconvenience; and yet, notwithstanding its remote situation, at South Kensington, and the great disadvantages under which it can alone be studied, it has been visited during the space of about eleven years that it has been open, by more than a million and a quarter of persons.

The Patent Library, situated as we have stated in the heart of London, is an eminently practical institution in its scope and intention. It contains printed copies of all the specifications of patented inventions, together with the elaborate indices, abstracts, and other guides which the commissioners have caused to be prepared for the service of students, inventors, and others.

A Reference Library upon all subjects connected with science and the industrial and fine arts was proposed to be collected round this nucleus, and perfectly free and unrestricted access to be given to all who desired to consult it. As far as it has been possible, this plan has been carried out. The library contains now about 50,000 volumes, selected with judgment; and it includes almost all the scientific periodicals. The access is, and always has been, perfectly free to every person applying and entering his name in a book, and the readers number about 16,000 annually.

The new room, though recently constructed, is full, or very nearly so, and any large increase of books would render it necessary to do what had to be done for long previous to this room being built,—keep the books least often wanted in packages in adjoining stores, whence they were fetched when wanted.

These institutions ought never to have been placed apart; they ought to be brought together, to be well housed, and to be fostered by liberal grants; nor is it necessary for this purpose to expend the ordinary revenue of the country. The annual surplus from the fees and stamps paid on patents amounts to from 40,000*l.* to 50,000*l.* a year. It was the intention of the Legislature when last the patent law was the subject of legal enactment, that so much of this surplus as was needed should be available for purposes such as those of the patent museum; and should this intention ever be loyally carried out, an extremely short time would suffice to convert these two divided and cramped institutions into branches of a noble establishment equally fitted with the Paris Conservatoire to minister to the education of those upon whom England depends for her future greatness.

The country is gradually awaking to the necessity that our artisans should be instructed in at least the elements of such sciences as bear upon the arts they practise, and that those who are to guide and direct them should be men of the highest scientific culture attainable. Yet no better provision than what we have described has yet been made for supplying reference books and models to our students of mechanics. We have repeatedly pointed out in this journal the need of appliances to forward the great and pressing work of technical education. We recognise the great services to the cause of decorative art rendered by the Science and Art Department, and the solid advantages given to a limited extent by the Government School of Mines. We were among the first to point out the value of Mr. Whitworth's noble and opportune establishment of scholarships; but all these things are not enough: we want more and more complete means and appliances, and we consider that nothing could tend more to this end than the uniting of the museum and library of the Commissioners of Patents, and the so completing them to the full scope of their original intention, that they should serve as a great storehouse of knowledge for all students of science, inventors, and artificers; and, in fact, that they should render the same services to science which the British Museum does to literature.

A society, the list of vice-presidents and supporters of which includes a large number of well-known names in the scientific and

literary world, has been lately formed for promoting the public education in a way sufficiently indicated by its title of "Public Museums and Free Libraries Association." The object of this society is to promote the establishment of museums and libraries wherever possible, and it has turned its attention to the institutions which we have just been considering, and proposes to urge on Government the importance of establishing these valuable creations of the Commissioners of Patents on a basis worthy of their great national importance. There can be no question that this object is one that falls legitimately within the scope of the Public Museums and Free Libraries Association, and that their action, if properly supported by public opinion, cannot fail to have great weight with the Government. The readers of this journal are few of them without a direct interest in this question. None of them,—no Englishman, indeed,—is without a strong interest in the progress of means of scientific education; and we trust that a fitting response will not be wanting to any appeal that may be made to the public voice on the general question of fostering our institutions for scientific culture, and especially on the specific point now being agitated for the uniting and completing the museum and the library of the Commissioners of Patents.

LAND AND MARINE SURVEYING.

THE out-door labours of an engineer give scope for the application of the exact sciences, and require a large amount of technical knowledge and experience. It is to be regretted that the ordinary course of office education offers little chance of the young architect becoming acquainted with the duties of the engineer, but to duly qualify himself for future professional success, the conscientious student will gladly learn all he can of engineering practice. The works of the surveyor and engineer precede those of the architect,—the ground is prepared, roads are made, the river pent within a safe channel, the sea controlled, before the edifice is raised; and yet the engineer and architect are so dependent the one upon the other, that it is a question whether the two should not more often be found combined in the same person. At all events, the architectural pupil should embrace every opportunity of acquiring the theory of engineering practice, and exercise himself in such out-door exemplifications thereof as circumstances permit. The elementary proceedings necessary for surveys of lands, taking of levels, and many other simple practical operations may be practised with advantage, and after thus obtaining an insight into the use of the various instruments employed, the student will be encouraged to perfect himself in working out more elaborate and difficult problems.

Leisure time may generally be found for this: "where there's a will there's a way;" and there must be, we hope, few articled pupils but who at some time or other during their term can find an opportunity of outdoor practice and of indoor study of the simpler processes of engineering fieldwork.

Perhaps no craft possesses so many well-digested elucidatory works suited to the student, to say nothing of the scientific and technical treatises written for the experienced professor, as are provided for the engineer. The necessities of our enormous towns make a constant call upon the services of the profession, and although railway mismanagement seems for a time to have arrested employment of engineers in one particular branch, there is yet so much to be done by these "pioneers of civilization," as to serve as an encouragement to many clever young fellows to take up the theodolite and the transit, and to qualify themselves to compete for the prizes held out.

Three books by the same author now upon our table, show that publishers, at all events, believe in the steadiness of the demand for practical engineering literature. These are "The Practice of Engineering Field Work," vol. i., 8vo., price 24s. London: Atchley & Co."; the second volume of the same, by same publishers, 1868, price 20s.; and "Land and Marine Surveying." Lockwood & Co. 1868:" each by W. Davis Haskoll, civil engineer, and author of many previous works on subjects connected with his profession.

The two volumes published by Atchley & Co. so nearly cover the same ground as the "Land and Marine Surveying" of Lockwood & Co., that it seems hard to understand why separate works were written. Each commences with definitions of different kinds of land surveys; descriptions of the 100 ft. and the Gunter chain, the foreign variations thereof; directions how to proceed to use them, &c., and so through the various stages of out-door and of office work, using almost identical illustrations, and enforcing the same well-digested rules for practical guidance in almost the same words.

So throughout the entire volumes, excepting that the last-named book ("Land and Marine Surveying") is more systematically written, and, if it be "a twice-told tale," is yet so well told, and hath so much of pith and marrow in it, that we must suppose the different publishers were understood to reach different circles of readers, or else how could the two almost twin books simultaneously appear?

Each work abounds with useful hints. The following is worth attention:—

"Many years ago, the writer was assistant to a gentleman who was engaged on a very extensive survey, on which one base line measured upwards of seven miles. A *straight-edge* (?) was purposely made for laying down this base, which was on mounted paper, and strained on a large board. When we came to fill in the survey, a great number of lines were run from, to, or through this base; and on plotting the work we were very much annoyed and surprised, for great pains had been taken, to find that many of these lines plotted too short or too long; many of them were chained over again, without finding any defects to account for the cause of our annoyance. At last the guilty one was suspected; a long piece of fine strong silk was procured, slightly waxed, and strained from end to end of the base, which was then discovered to be in many places as much as ten and fifteen links out of the straight line, and accounted for apparent errors in the field work."—*The Practice of Engineering Field Work*, vol. i., p. 19.

Ergo, test your straight-edge before using it; the simplest way being to place one against another and hold against the light, when the defects can be seen and corrected.

On page 24 of the same volume is a description of a home-made heliotrope. We would suggest as an improvement upon the author's swinging bit of mirror an American modification, which consists of a moveable cap, on which are two hemispheres of cut glass (like a decanter-stopper) silvered between. The reflected rays from this are visible at great distances, and the cap is strong and easily carried in the pocket.

The value of large ground-plans, in which the lines of survey are set out to a large scale, is very properly insisted on; and the author truly says that, although costly, the expense will in the long-run be an economy. The description of the various instruments used by engineers, which completes the first volume, is clear and satisfactory, and the illustrations are sufficient for the purpose. In the letter-press a little confusion is occasionally created by not making the references to the illustrations at the end of the book distinct from those that occur in the pages. The price of this volume, 24s., is startling; and that of the second volume, a thin octavo of 184 pages, 20s., is still more inexplicable.

The second volume is devoted to the subjects of water-supply, sewers, and irrigation, with, at the last, apparently to make the bulk of the volume somewhat more imposing, a supplementary chapter on "Traverse Surveying." The remarks on water-supply and the kindred topics of sewage and irrigation are well collected and valuable. The author has no hobby to ride; and when he expresses an opinion, does so with force and with well-applied reasoning. His references to statistics and ascertained facts are always fairly made; and his testimony against the present ignorant waste of sewage matter is given in the strongest terms.

The remarks on organic matters causing impurities in rivers we would gladly, but for their length, transfer to our pages; the reader is therefore referred to the work itself, pages 21 to 30. Following these are some useful facts relative to the comparative value of hard and soft waters. Contrary to popular opinion, our author correctly gives the balance of recommendation to the former.

The well-known works at Croydon and Edinburgh are of course described, and the subjects of constant and intermittent water-supply are discussed at full length. At page 128 he says: "We will now venture to make a few observations as to the present state of the outfalls at Barking Creek, because we believe that the whole of the question of the disposal of the London sewage will again demand the attention of the engineering profession;" and then gives the pith of all the evidence that has been collected upon this most important subject,—one full of difficulties. This portion of the work concludes with well-put arguments for the more frequent employment of irrigation as a means of increasing the wealth of our island.

Land and Marine Surveying is a most useful and well-arranged book for the aid of a student. It contains all the practical directions of the two volumes previously reviewed, omitting the remarks on sewage, water-supply, &c. The table of contents gives exactly the character of the volume, and we can strongly recommend it as a carefully-written and valuable text-book.

WORCESTER ARCHITECTURAL SOCIETY.

THE first excursion for the present season of this society was to Redditch and the neighbourhood. The weather was excellent. The party started by train at half-past nine in the morning, arriving at Redditch in about an hour, and the places visited, a monster omnibus from Birmingham and several other carriages being engaged for the purpose, were Redditch, Headless-cross, Ipsley, Besley, and Alvechurch.

At Redditch the party were very kindly received by Mr. R. S. Bartleet, who showed them over his extensive manufactory for needles, fish-hooks, &c., describing and illustrating all the various processes used in the trade. Then the company were taken to Mr. Bartleet's house and gardens, where they inspected many relics of the ancient Bordesley Abbey, including tiles, fragments of foundations, windows, doorways, &c., preserved by Mr. Bartleet during a recent excavation, and of which he has published an interesting account. After visiting the site of the abbey, where Mr. Bartleet described the ground-plan and the other features of the spot, the excursionists returned to his mansion, where a substantial luncheon had been spread, and all were thoroughly refreshed. Then they took to the carriages and sped away to the various churches of the places already mentioned, which were briefly described by Mr. J. S. Walker. After one of the most agreeable rides possible, the party arrived at the last halting-place for the day,—namely, Archdeacon Sandford's retreat at Alvechurch. They visited the Church of St. Lawrence, and, on leaving it, they were hospitably entertained by Archdeacon Sandford and Lady Erskine, and after remaining for a time at the rectory, and wandering about the grounds which surround it, the party proceeded leisurely to the railway-station, and returned to Worcester.

SIR DAVID WILKIE.

WRITTEN BY THE LATE JOHN BURNET.

WITH much enthusiasm for, and but little knowledge of, art, Wilkie went to Edinburgh in his sixteenth year to pursue his studies in the Trustees' Academy. This establishment (for good sometimes comes from evil) arose out of forfeitures for rebellion in the years 1715 and 1745; and though the sum, like that allotted for the Kirk of Scotland out of the plunder of the ancient Church, was scarcely sufficient to keep breath in a body which it should have animated with life, it awakened the slumbering spirit of the country. The aim of the institution was to improve the elegance of our manufactures; and the directors invited students from all professions in which taste had a share to come and study in their school of design. A succession of professors, who loved and excelled in painting, gradually extended the original plan. Runciman, scarcely inferior to Fuseli, came with the influence of his enthusiasm; David Allan succeeded, who brought from Rome some knowledge of Italian art; and both still loved to evoke characteristic scenes for Scottish song and domestic story. In short, the forerunners of Wilkie raised the fame of the school in the elegant as well as the useful. On the death of the master, who followed Allan, the Trustees, deceived by sketches which Wood, one of the candidates, did not himself draw, made him master, but presently resented the fraud by displacing him and electing John Graham, a man of probity as well as talent, in his stead. The new master, who had studied at Rome and in London, took an enlarged view of the duties of his station; and, though he continued to lend manufactures the aid of art, and render more graceful the leaves and buds and blossoms and the tracery from the looms of Glasgow and Dunfermline, he gradually introduced art of a

higher reach, and directed the students to draw both from the flat and the round, from statues as well as from pictures. To this for a time the selfish and short-sighted objected, for they failed to see that he who could successfully draw the unity and proportions, the poetical geometry, of the human figure, could draw anything.

Graham used, it is said, to relate, after Wilkie rose to eminence, how he was surprised one morning by a call from a sedate lad with a low voice and a country air, who presented a letter from the Earl of Leven requesting that the bearer, the son of a neighbouring clergyman, might be admitted to the benefits of the institution. He produced the drawing of a shepherd's dog, and sketches of men's heads, which the professor saw at a glance were not copied from pictures, and was surprised to find that David—for this was Wilkie himself—had drawn them from living nature in that wide academy, the world, and chiefly from the heads of the members of his father's congregation. In the art of drawing he was, indeed, far behind others of the students in whose ranks the professor immediately placed him; but he surpassed them all in comprehending the character of whatever he drew; indeed, as one of his comrades said, Wilkie would draw nothing till he understood it, and when he seized the meaning he proceeded to draw it on studiously and slowly, saying that the meanest figure in the smallest group had a meaning and a character, which it was evident all great painters observed. Artists who have since risen into eminence were in the same class with him. Allan the second—for Scotland has had two distinguished artists of that name—made room in the class for Wilkie, and went abroad. John Burnet (destined to aid in diffusing the fame of his fellow-students to the uttermost ends of the earth), together with Thomson, since dead (the brother of George Thomson, secretary to the Institution, and the editor of "The Melodies of Scotland," and correspondent of Burns),—these three were regarded soon as the ablest of Graham's pupils: Burnet for quietness of tints; Thomson for what was called historical loftiness; and Wilkie for original observation. One of the first drawings which Sir David made was a Niobe, in red and white chalks, still preserved; the second a man's foot, of which one of the elders of Cults remarked, when his attention was called to it, "A fit? It's mair like a flute than a foot;" the third, and this was done out of school, a shepherd's dog, which, during the first vacation, he carried to the castle of the Earl of Leven, nor did he hesitate to own, when, long afterwards, he happened to meet the Hon. Leslie Melville, how his heart beat when he approached the gate. He occupied very humble apartments in Rose-street, in keeping with the condition of a minister who had eight children and a stipend of 115*l.* a year; and in keeping, too, with the perfect modesty and good sense always as conspicuous as the genius of Wilkie.

The time of study in the Trustees' School was in the morning from ten to twelve, when the mind is unjaded with the business of the day, and the eye fresh: to this some of the masters, whose apprentices were students, objected, as it tended to unsettle the young mind for the soberer duties, and at last—but that was long after—the study-time was fixed for the evening, thus bringing to a work of genius a body fatigued and spirit blunted by a work of the hand. This suited the selfish feelings of business; but Wilkie, heedless of all but the studies of art, laboured on. Of a frame too delicate for the boisterous amusements and laborious wit of the younger citizens of Edinburgh, he watched the idle groups in the streets and the market-places, shoemakers at their task, masons at their toil, ploughmen between the stilts of the plough, and all the postures which crafts or professions put men or women into, and found a difference in all. He made nature his Ostade, and his Teniers, and Carse, a Scottish painter, with a fine tone of colour, was his Rembrandt, for neither Fife nor the Lothians had one of those artists, though the critics found both in him, when his first pictures burst on their sight. The nearest point of his approach was, Carse had seen a Teniers, and he had seen a Carse. Next to the contemplation of nature he loved the works of David Allan, and as Raffaelle was traced to Perugino, so was David the second supposed to be descended from David the first, and Wilkie borrowed some of Allan's attitudes, but the one was all propriety, and the other never stumbled upon it even by accident. Wilkie's early study of heads for portraiture—his skill in representing individual character—his art in catching Nature in her grotesque mood when she was all negligence, was the origin of his great success in the subjects of domestic or familiar life.

Graham loved historical painting, and had painted several successful pictures. His "Murder of David Rizzio," "Chevy Chase," and the "Burial of General Frazer," particularly the last, were meat to Wilkie's mind, and he kept a print of it in his study. The professor represented the value of the higher studies to the Trustees, and was allowed to choose subjects in which the ablest students might exercise their talents in oil colour, and stimulate ambition by premiums. The first runners in this race were Thomson, Burnet, and Wilkie, and they were directed to find their subjects for themselves in the tragedy of "Macbeth." The picture of Burnet was the sinking of the cauldron; that of Thomson, the scene where Banquo is murdered on the skirts of the forest; and that of Wilkie, the interior of Macduff's castle, where Lady Macduff defends her little ones from the murderers. The landscape showing the torches of Banquo flashing through the glades of the forest, was the chief attraction in the work of Thomson; the mingled supernatural light and darkness in which the cauldron sank into the earth, the most expressive in that of Burnet; the fine expression on the face of young Macduff is still remembered in that of Wilkie. Thomson obtained the prize, though, with some, not the praise; and some were not slow in imputing his success to his brother, the secretary, who influenced, they alleged, the distribution. Wilkie, if disappointed, did not show it, but bore it with a modest tranquillity; and so far did his gentle manners and after fame touch the fancy of the secretary that in letters still extant to the minister of Cults he forgets the name of Graham altogether, and speaks of David as his noblest student, and how he laid, under him, the sure foundation of his fame.

BELLHOUSE'S SAFETY APPARATUS FOR HOISTS.

THE greatly increased use of hoists and colliery cages renders more and more important the invention of means of preventing accidents with them. Bellhouse's apparatus appears calculated greatly to increase their safety. The following is the arrangement of it. Upon a strong wrought-iron pin secured to a wrought-iron fixing (which in its turn is bolted to the cross pieces of the chair or cage) is hung a weighted lever, one extremity of which is connected to the suspending chain or rope by means of a clip, which is attached firmly to both; whilst the other extremity is, after passing over the wrought-iron pin, jointed into a wedge or inclined plane, and terminates in a sharpened point. The wedge is made to fit the conductors, so that in the case of corner guides these wedges are V shape on the face, in side conductors they are flat, in both cases they are serrated. When the suspension ropes or chains break, the weighted levers fall some 3 in. lower, which lifts the wedge by forcing the sharp end of the lever into the conductor. The cage is meanwhile moving downwards, but the wedge having been stopped it follows that a thicker part of the wedge must be between the pin and the conductor, and the heavier the cage the more will the pin be forced on to the thick part of the wedge; so that the greater the weight to be stopped the greater is the pressure on each wedge by which it is again transmitted to the conductors. This is a feature peculiarly its own. It is the weight of the cage itself which, with the momentum, supplies the power to stop it; the weights and springs merely move, or rather set in motion, the wedges, which are instantly fastened by coming into contact with the conductors: this first action does not stop the cage, but merely places the wedges in such a position that the cage must stop itself.

By these means the greatest simplicity is preserved, and consequently the liability to get out of order is materially lessened. By employing wedges against the conductors, the tendency to break is reduced to a mere nothing, and the injury to the conductors, which in most arrangements is very great, is here only nominal, owing to the large bearing surface of wedges as compared with forks, spikes, or excentrics. No rack is required; and as there are so few joints, and in those few the metals working together being made purposely different, prevent liability to rust or to become fast from disuse.

The weight of this apparatus is very trifling, and the cost is said to be moderate. An arrangement is attached in mills, warehouses, hotels, and hospitals, which enables the catches to be instantly brought into action by any one in the cage; in the event of the strap which drives the gearing breaking or slipping, or over-weighting of the cage, or even of the break not acting with sufficient promptitude; so that whenever the descent is too rapid for safety, a chain overhead, hanging in easy reach, may be pulled, and the stoppage effected instantly.

LECTURE ON EPITAPHS.

A LECTURE on epitaphs was recently delivered by the Rev. E. C. Lewis, of Rochdale, in Macclesfield. The lecture was both interesting and amusing; its more sombre features being relieved by an enlargement on the lighter and more humorous or even absurd phases of the subject.

A cruel epitaph on a doctor runs:—

"Here lies the corpse of Dr. Chard,
Who filled the half of this churchyard."

At Oakham, 1736, on a wood-cutter:—

"The Lord saw good, I was lopping off wood,
And down fell from the tree;
I met with a check, and broke my neck,
And so death lopp'd off me."

The following is an epitaph on a man who was too poor to be buried with his relations in the Church of Kingsbridge:—

"Here lie I, at the chancel door;
Here lie I, because I'm poor;
The further in, the more to pay:
Here I lie as warm as they."

In an Irish village churchyard:—

"Here lies the body of Mary Quin,
Who was so very pure within,
She broke her outward shell of skin,
And hatched herself a cherubin."

There is a humorous epitaph in a churchyard in Wales, on the grave of an organ-blower, thus:—

"Under this stone lies Meredith Morgan,
Who blew the bellows of our church-organ;
Tobacco he hated,—to smoke most unwilling,
Yet never so pleased as when pipes he was filling.
No reflection on him for rude speech could be cast,
Though he gave our old organist many a blast.
No puffer was he,
Tho' a capital blower,
He could fill double G,
And now lies a note lower."

Our readers may recollect of a Yankee epitaph on a husband by his disconsolate widow, who stated in it that she still carried on the tripe-and-trotter shop round the corner: the following, on the other hand, looks as if it were intended to damage the sale of Cheltenham waters:—

"Here I lie and my three daughters,
All from drinking the Cheltenham waters;
While, if we had kept to the Epsom salts,
We should not now be in these here vaults."

Many epitaphs are, no doubt, not merely "only fit for *Punch*," but never appeared in any churchyard; and we may very fittingly sum up the present selection with one from *Punch* itself:—

"On a Locomotive: Written by the sole survivor of a deplorable accident (no blame to be attached to any servants of the company):—

Collisions four
Or five she bore,
The signals were in vain;
Grown old and rusted,
Her biler busted,
And smash'd the excursion train.
Her end was pieces."

ACCIDENTS.

Manchester.—A fatal accident has occurred at the Flixton cotton mill. The mill, which is eighteen windows in length and three stories in height, has only been built about three years. Last Christmas a massive iron cistern, supported by iron beams, was built on the top of the central portion of the mill. The rooms below this cistern were used as heald and bobbin rooms, the ground-floor being used as a stable. The cistern had only been half filled with water during the week, and was for the first time quite filled when it broke, by it own weight, the supporting iron beams, and crashed through into the stable, completely destroying the floors of the heald and bobbin rooms. Some 300 persons were employed in the mill at the time, and the

noise of the crash sent them running out of the building. Two men were in the stable. They were both got out alive, but one was so injured that he died in an hour and a half. The other man received a severe blow on the back by the falling iron, but it is considered that the injury will not prove dangerous. At the inquest it was given in evidence that the tank was made and erected by Mr. Robert Hall, of Bury. It was supported by five cast-iron beams, and rested on the walls on three sides. The ends of the beams rested on two walls. The building over which the tanks was fixed was not exactly square, and the beams were of different lengths. Four of the beams had broken, and one was still resting on the walls, which had not given way. The tank was calculated to hold 8,050 gallons of water. The weight of the tank and beams was over nine tons. Mr. Hall was called, and said he could not account for the accident. His son and one of his men had superintended the work, but his son was not there that day owing to his nervous temperament having been so much affected in consequence of the accident. He thought the tank was 4 ft. deep, perhaps 13 ft. wide, and 18 ft. long. He believed the beams were sufficiently strong. They had made and fixed tanks for twenty years, and had never known one to give way before. Ultimately a verdict of "accidental death" was returned.

Hook-Norton.—A man had just finished some repairs at the bottom of a deep well at Park Farm, and had ascended some 20 ft. on his return to the surface, when the walling began to give way beneath him. A moment or two more, and the whole of the stonework and surrounding earth had fallen in, burying him under at least 30 ft. of earth and stones. At the mouth of the well appeared a great chasm, of perhaps 12 ft. diameter, and the earth, &c., that had fallen in, reached to within about 12 ft. or 15 ft. of the surface. Digging out the well was commenced at once, and throughout the whole day untiring efforts were made to recover, as was imagined, the body of the unfortunate man. To the surprise and delight of the workmen, his voice was at last heard, earnestly entreating them to be quick, for that he thought he could not last much longer! He was brought up at last alive to the surface, and is now progressing as favourably as possible. No bones are broken, and the internal injuries, it is hoped, are not much. He was protected by a very large stone, which rested on a stout bar which had been thrown across the well to strengthen the masonry. He seems to have been supplied with air from a wooden tube, belonging to a pump which was fed from the well; this tube fortunately broke just opposite where he lay.

Crieff.—At a hydropathic establishment in the course of erection on the rising ground on the north side of Crieff, ten masons were in the act of carrying a large stone along a gangway, when the planks broke, and all the men, with the exception of one who clung to a beam, were thrown to the ground. All were more or less injured, but three of them were seriously bruised.

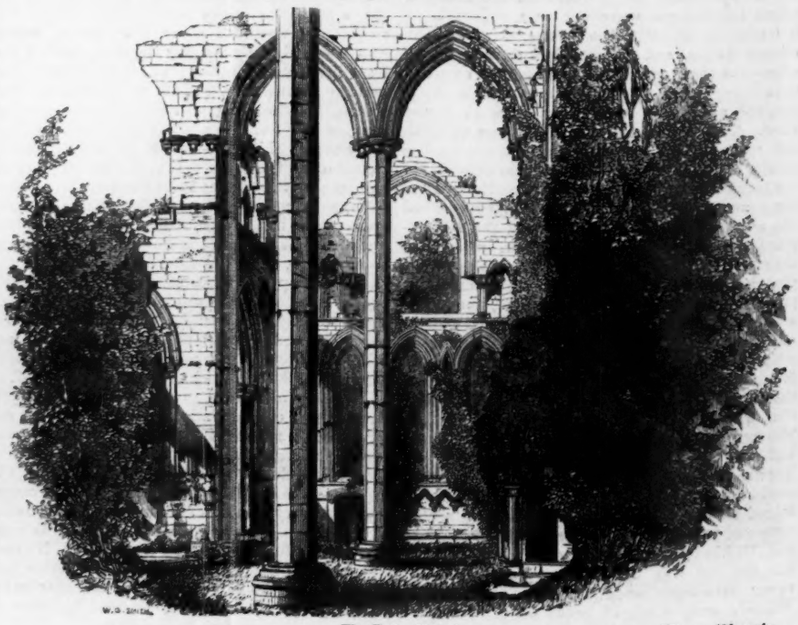
SANITARY PROGRESS IN THE LAKE DISTRICT.

THE tourists' season will soon commence, and many persons will be pleased to learn that great improvements have been made in the English lake district. Until very recently a warm bath could not be obtained at any town in the mountain part of Cumberland; neither did there exist either main-sewerage, house-drainage, or a public water-supply in any one of the lake towns or villages. Keswick has set the example, and we trust all the other places will follow. Keswick has been sewered and drained, and receives an abundant supply of soft and pure water from Skiddaw side: there is railway accommodation, a fine new Station Hotel, with the Royal Oak, the Queen's, as also the Lodore and Borrowdale Hotels, having warm and shower bath accommodation with other sanitary arrangements and conveniences of the most approved kind. The *Builder* has more than once pointed out the glaring sanitary defects in the lake towns, and remonstrated with the inhabitants on their apparent apathy. It is but fair, therefore, we should notice the improvements which have been effected, and we venture to promise an abundant repayment for the costs incurred. Penrith and Cockermouth have each been sewered, drained, and provided with public supplies of soft, pure, and wholesome water.

FOUNTAINS ABBEY, YORKSHIRE.

The Nave and South Aisle.

View of the Abbey Church from Robin Hood's Well.



The Lady Chapel.

[See p. 481, *ante*.

ENTRANCE TO THE VICTOR-EMMANUEL GALLERY, MILAN, ITALY.—SIGNOR MENGONI, ARCHITECT.

THE VICTOR-EMMANUEL GALLERY, MILAN.

NOT long ago, this fine new gallery, constructed in Milan, by an English company, was illustrated and described in our pages.* We now give a view of the entrance to one end of the gallery, embracing a view of the monument to Leonardo da Vinci. It will be observed that the external end of the gallery is not at right angles with its axis, and that an arrangement was necessary to produce symmetry and regularity within. The ornamentation is rich and elegant.

THE WIDENING OF PARK LANE.

IN answer to Mr. Goddard, in the House of Commons, Lord J. Manners detailed the steps taken by the Board of Works with a view to improve the approaches to Park-lane. At the present moment there was no scheme, and until further proceedings had been taken it would be quite impossible for the Board of Works or any other body to widen Park-lane. A recommendation had been made that the east side of Park-lane should be pulled down; but the whole matter would no doubt be carefully considered before next session.

At the last meeting of the Metropolitan Board of Works, the chairman drew the attention of the Board to what had taken place in the House of Commons in reference to this question. The Board, he said, had made application to the Government, asking that a surveyor should be sent down to make arrangements for the opening up of Park-lane, but they refused to entertain the question. The next thing the Board did was to consider the opening of Hamilton-place, when they met with the most determined opposition on the part of the Commissioner of Woods and Forests. They then had no course left to them but to open Park-lane itself, and in the consideration of the public interest, which they were bound to attend to. If they had attempted to open Park-lane on the opposite side, they would only have had a 50-ft. roadway instead of one 70 ft. or 80 ft. A strong opposition was offered to this proposition of the Board for the widening of Park-lane, and the consequence was that the bill was thrown out, and now the committee of the House of Commons recommended that the Board should go back to Hamilton-place. What were they, as a public Board, to do when driven about from one thing to another in this way? After some further discussion the subject was referred to the works and general purposes committee.

The Piccadilly end of Park-lane cannot be equalled in the "West-ends" of all Europe for inconvenience, all things considered: it is narrower now, as the *Morning Post* remarks, than when it was only known as "the lane leading to the gallows." Could not the plan some time since suggested in the *Builder* be reconsidered, with the view of its adoption, as the easiest way out of the difficulty?

FROM IRELAND.

Dublin.—A plan for increasing the width of Carlisle Bridge has been designed by Mr. Geoghegan, architect. It could be carried into execution, it is said, without disturbing the present bridge, and would not cost half the amount which would be required to erect a new bridge. Mr. Geoghegan proposes to allow the present bridge to remain, removing the parapets, and extending the width to that of Sackville-street, 153 ft., and reducing the roadway to a perfect level, the centre arch only having to be altered, the stone voussoirs being replaced by cast metal beams, arranged so that the water and gas pipes may pass between the beams in the depth of the new crown, the extensions each side being supported on hollow cylinders sunk down to a solid bed, and filled with concrete, the roadway being maintained on cast metal arched beams and iron plates, filled in with road metalling. The façades facing the river on each side would be of ornamental metalwork, concentric with the arches of the present bridge, the whole forming to all appearance a new and ornamental structure. The old bridge may remain undisturbed until the lateral extensions are completed.

Belfast.—The foundation-stone of a projected Masonic hall has been laid with Masonic ceremonial. The site is central, occupying a considerable portion of one side of Arthur-square and Ann-street. It is approached from Corn-market, Arthur-street, Castle-lane, and Ann-street, and there is an open space in front which will show the dimensions and general character of the building. The architects are Messrs. Lanyon, Lynn, & Lanyon; and the builder is Mr. McKeown. The cost is estimated at 8,000*l.* The building will consist of a ground, first, second, and third floors, with a total street frontage of 170 ft.—100 ft. in Arthur-square, and 70 ft. in Ann-street. On the ground floor there will be six capacious shops and a suite of apartments for the caretaker. On the first floor will be a large and small dining-hall, a billiard-room, and a committee-room. The arrangements on the second-floor will be somewhat similar to those on the first, and it is intended that this floor shall be devoted to the purposes of a Masonic club. The third floor will be used solely for the purposes of Masonry, and will consist of one large hall, 42 ft. 6 in. by 26 ft., and 18 ft. high, for the meetings of the Blue and other symbolic lodges; a smaller hall, 30 ft. by 20 ft., same height, which may be used for the Royal Arch Chapters. There will also be another hall, 30 ft. long by 18 ft. 6 in. wide, and same height, for the purposes of an encampment of the High Prince Masons, and also for their chapters. Each of these rooms will be provided with an entrance-porch and ante-room. On the same floor is a small room for the paraphernalia connected with the various degrees. The design is in the Early French style. The lower portion of the exterior, from the ground-line to the level of the windows, will be executed in Cookstown sandstone, and the remainder of the building in white brick. The quoins, corbel moulding, string courses, and all the other dressings, will be of sandstone.

* See pp. 297-299, *ante*.

THE CANTERBURY SEWERAGE.

THE main drainage and sewerage works have been handed over by Mr. Pilbrow, the engineer to the local Board. The report presented by him shows that the house connexions only are now required, and these must depend upon an efficient water-supply to make Canterbury a thoroughly-drained city. The total cost has been 13,157*l.*, which is considerably within the estimate.

The total quantity of sewers laid, of all classes, is about thirteen miles, together with about fifty-four large inspection-shafts, seventy-six flushing-shafts, 100 ventilating-shafts, and crossing the river at five different places. The outfall works, or sewage deodorizing tanks and filters are said to be now satisfactory; but the nearly submerged state of the land below the city, and the boggy character of the soil, rendered this portion of the works more costly and difficult than was anticipated.

The principle upon which the system of sewers is laid down is the "Separating System" (and which Mr. Pilbrow claims to have originated in 1850). All surface and storm waters are excluded, so that the sewers are for the exclusive purpose of carrying away from the houses and city the sewage proper, the vehicle for conveying and forcing this through them being the artificial daily and hourly supply of water to each and every house.

The most of the sewers laid in the city are of stoneware pipe of Messrs. Doulton & Co.'s manufacture, ranging in size from 8 in. to 18 in. in diameter, and of the kind known as "coned and rebated pipes," originally devised by the engineer, and always specified by him. The sewage from these is eventually collected into a main brick sewer of oval shape, measuring 3 ft. by 2 ft., built of 4½ work in Portland cement, and rendered with the same.

From this sewer the sewage is emptied after traversing the Broad-Oak-lane, about a mile and a quarter from the city, into the sewage-house, which is a plain rectangular building of brick, the greater part of it being below the surface. It is 160 ft. long by 60 ft. wide internally, and divided longitudinally into three compartments, the centre one comprising the filter and charcoal rooms, the former 120 ft. by 19 ft., the latter 39 ft. 3 in. by 19 ft., and situated on the ground level. The compartments on each side consist of the subsiding tanks, which collectively run the whole length of the building, the brick partitions with iron strainers on the top acting as weirs. The sewage on entering the building is received in a pit, and made to pass into the first tank through an aperture at the *bottom* of the partition, thus keeping all solid matter down at once as much as possible. As each tank is filled the liquid passes over the several weirs, and eventually into the filter-house, which contains two sets of filters 3 ft. apart, two in each set, at different levels, 2 ft. apart, 120 ft. long, 2 ft. wide, and 2 ft. high. The sides of the filters are cast as gratings, the openings ¾ wide and bars ¾.

The sewage-water after passing laterally through two filters filled with charcoal (one set being in operation while the tanks on the other side are being cleared of deposit) finally flows as clear, it is said, as inodorous water down the 24-in. outlet pipe to the river below Fordwich, a further distance of 1½ mile passing twice in its course through iron pipes laid under the bed of the river Stour.

The execution of the works has been attended with some discoveries and findings of considerable antiquarian interest. We may mention the Roman tesselated pavement referred to in a letter in our number for May 23rd, but which was broken up in removing. The engineer, however, had luckily had it photographed and an accurate key for colouring it taken (by his assistant, Mr. W. H. Fox), and has since presented the Society of Antiquaries (London) and the Kent Archæological Society with coloured photographs of each.

Other portions of Roman pavement were found in different parts of the city, as also remains of the ancient city walls constructed by the Romans. The engineer is preparing a plan of the city to show the position of this and other interesting features.

The whole of the works have been designed and carried out under the personal supervision of Mr. J. Pilbrow. Messrs. Good & Hukens acted as clerks of the works. Messrs. Dowell & Tyler, of London, were the contractors for the construction of the brick sewer; and Messrs. Dickinson & Oliver, of London, for the sewage-house and pipe-laying. The pipes were found by the Local Board.

LIGHT AND AIR: IMPORTANT JUDGMENT.

THE case of Horsley *v.* Leak, decided by Vice-Chancellor Malins on the 22nd ultimo, appears to be of more than usual interest as a practical test of the law on this frequently perplexing subject. From a full report in the *Yorkshire Gazette* we extract the following portions:—

"This bill was filed to restrain the alleged obstruction of the plaintiff's light and air, in Coney-street, in the city of York. It appeared that the plaintiff and the defendants derived their title from the same vendor, the plaintiff being a gun-maker, and the defendants, Messrs. Leak & Thorp, drapers. The land on which the respective houses stood had originally formed portions of the site on which the well-known George Hotel had stood, and the defendants had contemplated building on a yard or space fronting the plaintiff's house, which, it was sworn, if carried out according to the plans, would materially obstruct the light and air, especially those of the engraving and finishing rooms. The case came on originally as a motion for an injunction to restrain the alleged obstructions, when, by arrangement, it was agreed that the case should come on upon motion for decree, and a reference was directed to Professor Kerr, to examine and report on the obstruction of the intended building. The professor had made his report, suggesting two lines of building, which may be called the upper and the lower. By the former sufficient light would be secured to the plaintiff to be serviceable for domestic and other purposes; and by the latter, practically, the whole light which he had before he would still enjoy."

In explanation of these "two lines of building," we are enabled to quote from the referee's report, "The average elevation of the old sky-line would be very little more than 20 degrees above the horizon. It also appears that the elevation of the intended new buildings of the defendants would rise up to about the 45th degree. In precise measurement I estimate the original arc of exposed sky to have been on an average 36 degrees vertically, and the obstruction by the intended new buildings to be about 24 degrees thereof, leaving only 12 degrees still to remain exposed. Upon these data I have to answer the question, 'Whether the proposed new buildings of the defendants will materially diminish, obstruct, or prejudicially affect the passage or access of such light as passed or had access to' * the window formerly. If these words were to be taken to mean that the whole of the former light-yielding sky-surface ought to be preserved,

* Terms of Order as agreed by counsel.

it cannot be disputed that a large and material portion thereof would not be preserved; but if it is rather to be understood that the defendants' new buildings may possibly be permitted to a certain extent to encroach upon that former extent of sky-surface, but only so far as not to diminish materially the serviceableness of the window for purposes of ordinary occupation and work within the room, then I am of opinion that the said new buildings may be permitted to rise to a considerable degree above the old sky-line without the plaintiff suffering any sort of practical injury in carrying on his business or otherwise. As regards the precise height to which the new buildings ought to be confined, I need scarcely point out, that if the principle of preserving the whole of the old sky-surface were laid down, the limit of about 22 degrees above the horizon" (illustrative drawings being referred to) "would obviously be a fair average, which would render it necessary to cut down the new buildings to the line *z z*; but if the other principle of preserving only the serviceableness of the window for occupation and work be laid down, then my opinion, after very careful consideration, is that, so long as the new sky-line to be formed by the summit of the new buildings does not reach above the summit of the new wall called E in the evidence, as seen from the window, the efficiency of the window for purposes of ordinary occupation and work within the room (which is a small one) will not be found to be materially interfered with, and the line *z z* (drawn from the head of the window through the top of the wall E) would be the limit to which it would on this account be necessary, in my opinion, to cut down the new building."

The Vice-Chancellor, in delivering judgment, said,—These questions, with regard to light, are about the most embarrassing questions that come before the Court. In the present case it appears that it does not depend on the question of the antiquity of the light, but is a question between two adjoining proprietors claiming under one common vendor, and the plaintiff rests his right upon a grant contained in his deed. The whole of the property in question—that which is held by the plaintiff, and that which is held by the defendants—is an old hotel, called the George Inn, in York. That having, it appears in the year 1855, in consequence, I suppose, of the establishment of railways, become an unprofitable concern as an hotel, it is offered to public competition at sale by auction in four lots. None of the lots were sold at the sale, but the day after the sale the plaintiff became the purchaser of the most northern lot, namely lot 4, and subsequently adapted it for the purposes of his business of a gunmaker. As to the remaining lots, how they were occupied does not appear, but they appear to have remained unsold until the year 1866, when they were again put up in three lots, being, I suppose, the same lots as described in the particulars of sale of 1855, and were bought by the defendants. The defendants, who are carrying on the business of linen drapers, and, I suppose, on a large scale, desired to enlarge their premises, I presume to pull down the old buildings altogether and erect new buildings, and have as much space as they could get, and they proceeded to build on that vacant space of ground, against building on which there was certainly no prohibition whatever in the plaintiff's conveyance. To erect buildings of some kind it is perfectly clear they were entitled; but it is also, I think, quite clear, that they were not entitled to erect such buildings on that vacant space of ground as would derogate from the grant to the plaintiff, that grant being of "all lights," which means the existing lights. Now, as regards the grant to the plaintiff, I take it, the effect of a grant of all lights, meaning the existing lights, was to put the plaintiff (whether these were ancient lights is not now material) as between himself and his then vendor, and, consequently, as between himself and all persons who, by subsequent title, derived a title from the vendor in the situation of grantee of the lights, having the same rights against the vendor as if they had been ancient lights. I am, therefore, of opinion that the defendants were entitled to erect some buildings. I am also of opinion that they were not entitled to erect such buildings as would derogate from the grant to the plaintiff. There seemed to be great uncertainty as to what the defendants could do; and then, from this correspondence, which has been read, it appears that, in the month of August, the defendants made a communication to the plaintiff to the effect that they would be willing to abide by the decision of any independent architect to be appointed between them, half the expenses of which they were ready to bear. The plaintiff gives an answer, which certainly amounts to this,—that he contended then, as he continued most unquestionably to contend up to the day of the filing of the bill, that they had no right to build on the vacant space. He contested the right altogether. The plaintiff is proved to be entirely wrong in that part of his contention. On the other hand, the defendants having made an offer, which I think the plaintiff would have done well to have acceded to in August, at the time this dispute was going on, they gave up that reasonable course, and employed an architect to prepare plans for them to erect a building on this vacant piece of ground to the height, in round numbers, as I recollect as nearly as may be of 45 ft., and they insisted on going on with that building. That led to the institution of the suit. The then existing plan would have given the defendants twenty bed-rooms at the back of their shops; but they are now willing, in consequence of Professor Kerr's report, to submit to the line recommended by him, which would cut down their building from twenty bed-rooms to fourteen. The result of all this, therefore, is that the plaintiff has been entirely wrong so far as he has contended that they were not entitled to build at all, and the defendants have been equally wrong so far as they have contended they were entitled to carry their buildings to any height whatever. The matter coming before the Court in April, feeling myself much embarrassed by the evidence on both sides, I referred it to a gentleman, whose name was acceptable to both parties, namely, Professor Kerr, of King's College, to examine the premises, and not by way, of course, of deciding anything, but simply to report to the Court what in his opinion ought to be done. He has made a report which I think is very satisfactory, because he has made a recommendation which both parties have accepted, which in the result comes to this, that the buildings, instead of being carried to the height of 45 ft. should be carried to the height of 35 ft. only; that is, the defendants are satisfied to diminish their building 10 ft., and the plaintiff has said that he is content to acquiesce in that (the line 22). Under these circumstances it has been contended on the one hand by the plaintiff that the defendants ought to pay the costs, and, on the other hand, it has been vigorously contended that the plaintiff ought to pay the costs. But it being considered that both parties are wrong, and that both parties contended for more than they were entitled to, I think the justice of the case would be met by saying that each party should bear his own costs. Therefore the substance of the decree will be—The defendants, undertaking not to erect any building beyond the height of the line 22 in the plan in the report of Professor Kerr; and the plaintiff being satisfied that a building of no greater height should be erected, there will be an order in the terms of the prayer of the bill, against the defendants. Each party pays his own costs, and the costs of Professor Kerr to be paid by the plaintiff and the defendants in equal shares.

WHERE ARE WE GOING TO?

SIR,—In perusing the article so headed in the *Builder*, it gave rise to thoughts mingled with sadness and reproach. I have dotted them down as they presented themselves, and send them to you. If you find anything worth notice do with them as may seem best. I have a vivid recollection of living in a house where there were many children, all very healthy and full of animal spirits. Neither the father nor mother had the least conception of proper parental authority: consequently the children ran wild, and the poor woman was continually complaining of their waywardness and ingratitude. It never once suggested itself to her that the greater part of the fault probably lay with herself. In making a comparison of society and its complaints against trades' unions with the woman and her children you will bear in mind it only has reference to the absence of properly exercised authority, and the consequent disobedience of the children. Whenever any startling effect presents itself in relation with the physical laws it is known there must be a cause; if new, men bend their minds to find it out. Cause and effect in the moral laws work with the same unerring certainty, but through not presenting themselves so suddenly and startlingly, their connexion is not always so apparent. I will endeavour to form a chain to connect the cause of the formation of trade unions and the effects we see. The cases I shall name came under my own observation, being at work with the trowel at the places. Of course they will be but the type of a system generally practised where it could be done. Some eighteen years ago I worked for a task-master who used to do most of Messrs. Lock & Nesham's large contracts. At that time we were building Wandsworth Prison: we used to tumble in from 1,500 to 2,000 bricks in ten hours per man: still the cry was, "More! More!" Every mean advantage was taken of the men, who were compelled to do the work in such a manner that any man with the least conception of what was right must rebel against it. The men had a fair price for their work; but, besides providing for themselves, it cost much to buy those whose duty it was to see the work was done properly.

The next scene is the North Kent Railway; the same sub-contractor; principal contractor, Mr. Little. On a summer's morning at daybreak, as the occasion required, might be seen a gang of labourers wheeling bricks into the spandrels of the arches (they used to build them solid, or were supposed to do so at that time) and tipping them in the same as they would rubbish into a hole. When they got to a certain height bricklayers came and levelled them down, and paved a course or two on the top in the proper way before the ordinary time of coming to work. The inspectors had got so fat by gratuities, eating and drinking, &c., that they could see nothing of that sort. As many as 20,000 or 30,000 bricks have been put away in a morning in that manner. If it were wanted to be done in the day-time those that should have looked after it were taken off to the public-house, when of course they did not see it. I myself was told by the man's own brother, that he got 1,000*l.* out of the work on that line—*labour only*.

No doubt the same evil influences have been at work in other branches of industry (though not in that form), leading men, as it did in the circle in which I moved, to see the necessity of organization to resist the system.

I think I have shown causes sufficient in themselves to call up a spirit of antagonism, and induce men to combine to give it effect. In these operations what has led, then, to produce such fruits as we see? During the great lock-out in the building trades a deputation waited on the Home Secretary, Sir Cornewall Lewis (Sir Morton Peto was spokesman—shrewd man!), to ask for the interference of Government. After enumerating the many concessions in the shape of leaving off at four o'clock on Saturday, and the rise of wages, &c., he said they felt bound to resist any further demands. The Home Secretary asked under what circumstances those advances were made? Sir Morton replied, when the men struck for them. That is where the worst evils in connexion with trade unions spring from. If a concession is just, and can be granted when asked for, give it; but if wrong, it becomes ten times more so if granted under the pressure of a strike.

Do not infer from what I have said in reference to piece-work that I condemn it,—I see no objection to that with honest supervision;—or that I have any sympathy with trade unions in their operations; but believing there are causes that bring them into existence, and the evil effects that follow, I have endeavoured to point out a few; and, if right, let all in society who should set an example of right and duty done take it to themselves and work it out in their lives, and then the cry of the strong against the weak would cease, and we should not have to ask, with anxious minds,

WHERE ARE WE GOING TO?

MORE THINGS WORTH KNOWING.

1. WHY are not the names of streets painted on the lamps instead of being stuck up high on the wall, where, when night comes on and they are most needed, they cannot be seen? Or a stencil plate hung inside would do.

2. Why do not owners of house property have their chimney-stacks occasionally looked to? Life is not safe in some parts of London during a gale.

3. Why, when there is a trap-door in the roof to facilitate escape from fire, do lodgers allow the householder to keep the necessary ladder down in the back yard for the purpose of elevating his clothes-line? This is more often the case than many would think.

4. Why are Thames steam-boats allowed to carry as many passengers as can crowd on board, to the peril of those persons' lives? Take, as a sample, any boat returning from Battersea-park on a fine summer Sunday evening.

5. Why, as the cry is still "more bridges," does not some one start the idea of bridge bazaars? The rents would pay for their erection, and they must become thoroughfares for traffic, toll free. Why not have a bridge fish-market?

6. Why are our new bridges being built without seats on them?

7. Why, as attempts are sometimes made to upset a train by placing impediments on the line, is not something fitted to engines that would chip even a sixpence off the metals if it were there? Present precautions are insufficient.

8. Why are paupers clothed in so absurd a style? Does Mr. Bumble mean it as a deterrent?

9. Why are not the Volunteers enrolled as permanent "special constables"?

10. Why do not all artisans begin their day's work at six a.m., and have two hours a day,—a day a week!—to recreate themselves, more than they get now? A factories' doctor once said to the writer of these queries, "It is between six and eight o'clock in the evening that you mechanics get old."

11. Why is not every lift to a mine-shaft fitted with a self-acting apparatus which, directly the tackle breaks, shall throw out projections to clutch the sides of the shafts, and thereby prevent it smashing itself at the bottom and killing its contents?

12. Why are not those men who drill monkeys on tables in the streets until their poor little lives are not worth having, punished by the Society for the Prevention of Cruelty to Animals?

13. Why are not the long-ago-suggested subways, or overhead footpaths at busy crossings, commenced before more lives are lost?

14. Why not have life-lines and buoys handily placed along the Thames Embankment (say, under the trees we hope to see there), for while

boys *will* climb, and women *will* lean over the river wall with children in their arms, something of the kind is necessary? The suggested festoons of chain would only be serviceable to those close in at the side.

15. Why not remove the gate by Tavistock-square and a few buildings by Clare-market and Drury-lane that want removing, and so have a direct road from Hampstead Heath to the Embankment?

16. Why is the Cobden Memorial, in High-street, Camden-town, put up the wrong way? Sir Robert Peel might as well turn his back on Cheapside.

17. Why does not somebody keep a sharper eye on speculative builders in new localities? Judging by some carcasses, it is a wonder that many houses do not collapse under their own weight.

18. Why does not the Government at once take steps towards working the railways itself? After the lamentable show of inefficiency in the arrangements for the late Windsor Review, no more argument is required to show why the item of conveyance should be under the direct control of the War-office.

19. Why are boats let out on the Thames to little boys too weak to manage them and too thoughtless to sit still?

20. Why are "muzzled" dogs' mouths sealed up with a tight binding-strap, so as almost to prevent them breathing? Would not a wire-work nose-cap be cooler and less irksome to them?

21. Why do butchers always drive so fast? Do they and Hansom cabmen think it proper to turn corners on one wheel? J. G.

BOTANIC GARDENS: CONSERVATORY ADDITIONS.

APPLICATION has been made to the Fellows of the Botanic Society by the Council to raise 3,500*l.* in order to enlarge the conservatory and provide a covered way to it from the road to the north side. A conservatory ought to be a part and parcel of the decorative embellishments of a pleasure-ground, and we see how the Government, usually so parsimonious in such matters, have erected very elegant conservatories at Kew. The present conservatory at the Botanic Gardens is already most unsightly, and unworthy its position as the culminating point at the end of the broad long-walk. But the outlay is to go to increase this mass of ugliness in the *same taste*. I am no advocate for useless show; but disposition of mass and variety of outline need not necessarily involve increase of cost. I think it would be more judicious in the Council, if they have not the spirit to employ an architect of taste, to invite designs and tenders from other tradesmen in that class of ironwork, stating the amount the Council are prepared to expend and the additional accommodation required, and I am convinced they will have a much more sightly and possibly more extensive erection than that shown by the model in the council-room of the Botanic Gardens. Messrs. Handyside's trade-book on "Works in Iron," reviewed in your last number, shows what can be done for comparatively little money.

THOS. L. DONALDSON.

ADULTERATION OF LABOUR.

SIR,—Has not the time arrived when this question should be taken into consideration. Is it not notorious that the expenditure of thousands of pounds is in abeyance, on account of the disgraceful manner in which works of decoration and repair are now executed. Do the workmen give a fair day's work for a fair day's wages? It is notorious that when a job is to be executed, it is done in a most indolent manner, to the great inconvenience of the householder, who of course has in the end to pay the master builder or employer. Talk of the adulteration of food, it is nothing to what the holders of house property have to submit to. My contention is, that ample work is to be found, if the workmen would do justice to their employers, and enable them to execute the work they could obtain, if it were not put off indefinitely, in consequence of the difficulty in getting rid of the workmen when once they commence a job.

W. H. B.

ANTILL'S PATENT STENCH TRAP.

OUR attention has been called to a stench-trap invented and patented by a working man, J. Antill (Merton-road, Wandsworth), which has this advantage, that the grating may be taken off to clean it out without thereby admitting bad air

from the drain. The section shows its construction. The principle is old enough; the novelty is in application. A builder writes that he has had one of these in use for some time, and finds it answer well.

LOLLARDS' TOWER.

SIR,—The Lollards' Tower is mentioned in Mackyn's Diary, a°. 1555. "The xx. day of September was cared from Nugatt [Newgate] unto the Lollar stowre serten men;" and a°. 1556, "the xx. day of October was delivered out of the Lowlar Towre alle the heretykes that came out of Essex," &c. Stowe's Survey also notices that the southern bell-tower at the west end of St. Paul's Cathedral was so called. The northern tower, near the Bishop of London's house, was attached "to the use of the same palace; the other, towards the south, is called the Lollards' Tower, and hath been used as the bishop's prison for such as were detected for opinions in religion contrary to the faith of the Church." In the "Churches of London," by George Godwin, F.S.A., and John Britton, a note states that "in 1514 Richard Hunn was hung in a tower at the S.W. corner of the church for heresy" (p. 17).

MACKENZIE E. C. WALCOTT, B.D.

WAGES IN THE UNITED STATES.

SIR,—It may interest some of your readers if you like to publish the following paragraph, which I copy from a letter dated 30th May, 1868, just received from a friend who returned from London to Chicago, Illinois, last November, and is now actively engaged with a partner in erecting several houses as their joint property, on a plot of suburban land, lately purchased for 5,000 dollars. The wages for skilled workmen may be easily reckoned by allowing 5 dollars to the pound sterling.

W. H. ESPENETT.

He writes as follows:—

"You will say, why do we take off our coats and do our own work? Bricklayers are getting 5 dollars a day; masons 4 dollars; carpenters, painters, &c., 3 dollars. No man will touch a hod or a spade as labourer for less than 2 dollars a day. My partner and I yesterday hauled with our team 10,000 feet of boards to a planing-mill; it would have cost us 10 dollars to have employed two other men to do it. When a man makes 5 dollars a day, he can afford to bury his gentility, particularly if his gentility would only starve him."

*** Paper currency must, we suppose, be allowed for.

MAIDSTONE MUSEUM.

SIR,—With reference to the interesting notice of the Maidstone Museum, in your last number, permit me to send a few supplementary remarks as to the past and present condition of the museum. The late excellent curator, who had been the personal friend of Dr. Charles, the founder of the museum, was advanced in life before he accepted the office, and, during his latter years his memory failed him a good deal. The present curator, therefore, on succeeding, had not only to reduce to some order the original collection, but to incorporate and catalogue the extensive and valuable bequests of his predecessor. This he has at length completed, and he has likewise prepared, for the use of the visitors and readers, a catalogue of the library. He is also engaged on a catalogue of the antiquities, &c. These he hopes to get printed; but, as the Corporation have only a limited sum at their disposal for the improvement of the museum, time must be allowed for all you wish to be done.

It is due to the Corporation to state that they seem fully alive to the importance of their trust; and that they give as much encouragement as is in their power to the recommendations of their curator for making the museum what I hope in a few years it will become—a model museum.

The old Manor-house had been sold in portions, and that of which the Corporation became possessed was the centre and back premises and garden. They have very recently (partly through the liberality of the gentleman referred to by you) purchased another portion of the house, and at this time the builders are engaged in making the alterations necessary for the enlargement of the museum. One of these will consist of a new library, adequate to the proper arrangement of all the books, many of which are at present useless for want of room. Another apartment will give space for a collection of curiosities, which has been presented by a gentleman connected with the town by family ties. These alterations will involve an outlay of many hundred pounds; and I think that Maidstone may fairly be congratulated on having a Corporation of intelligence and public spirit, by all strangers who visit its museum, and who ascertain how much has been effected in a few years with limited means.

A LONDON VISITOR.

LEIGHTON ("BUZZARD") AND VICINITY.

SIR,—This subject was included in your notice of "Woburn Abbey and Vicinity."* You even recommended the spot—far more generally known now by "railway" connexion than (as many other things) would have been dreamt of half a century ago,—as a desirable "standing ground" for excursions within a moderate circle.

Its adjunct of "*Beau Desert*" has long been known, apart from any local "merit," as being without proof. The origin is believed to have been from a family named "Bozart," or "Busart," connected with the place. But I am unable now to give the date. Probably about 1350.

Doubts, since Lyson's time, have been thrown as to this having been the "*Lygean-Burgh*" of the *Saxon Chronicle*, A.D. 571, one of "four towns" taken from the "Brit-*Welsh*" (for this seems a natural interpretation of "Brit-*Wealas*" by *Cuthwulf*, after a victory at Bedicanford (Bedford). In the writer's very humble opinion probability is on the side of this, as it was the first place of probable importance on the undoubted line of route.

But "that as it may," there is no doubt that from the considerable details in "Doomsday Book," 500 years afterwards, it was then a place of no trifling repute. The tolls of its market (still the largest for a considerable distance), being then "7*l.*" per annum, a very considerable sum for that date. It is now the second parish in extent, 8,000 acres, to Luton (16,000), in its county, and has a much more unusual feature in this part of the kingdom, four ancient Chapels of Ease; one of them, Stanbridge, a small three-aisled "church," possessing also a peal of five good bells, and having, though a hamlet, given name to a "Half Hundred," three or four parishes, in "Doomsday Book."

The population, about 3,500, with the hamlets, in 1801, is supposed to be now about, or upwards of, 7,000. The neighbouring parish, or (Bucks) "railway suburb" of Linslade, from 100 then, has between 1,500 and 2,000. The first modern move in the prosperity of Leighton was the "Grand Junction Canal," sixty years ago; a great boon in the supply and price of coals.

The "Cross," a "market" one (the only other in that county being at Steventon), was perhaps built about 1400; and has certainly small claims to beauty. The church is a tolerably spacious and neat, though plain, cruciform building, showing to much advantage to railway travellers. Its best feature is the clearstory (Mr. Rickman says "plastered,") with double-windowed bays. A superior and perfect row of stalls is on either side of the chancel. The spire is 192 ft. high,

* See p. 385, *ante*.

and the loftiest within a large circuit, perhaps of forty miles; Olney, 185 ft., approaching nearest.

Here also, as at Dunstable and Ampthill (before alluded to),* are good almshouses. Eight founded, besides other acts, including an augmentation of the poor vicarage, by Matthew Wilks, a simple "Squire," some 250 years ago, the favoured inmates of which receive now *eight shillings* a week each, besides some fuel and clothing.

An additional church, of moderate pretensions, has been erected for the town; also one long before at Linslade. The "Corn Exchange," in Roman style, is equal to a larger place.

Distress from the unhappily little use now made (it is hoped slightly increasing) of "Straw plait" bonnets, on which the public were appealed to in the *Builder* last year, extends to Leighton and farther.

Wing (Bucks) has, also, a lofty and imposing tower window. Here was a grand tenor of six weighing 33 cwt., re-cast lately to 30 cwt. only. (Leighton has the best, though not quite heaviest, peal of eight in Beds: tenor 26 cwt.)

Stewkeley Church (engraved, I think, both in Grose and Lysons), which I once saw, very long ago, appears, except that it has one transept, most resembling Iffley, Oxford. Some five miles north of Leighton is Bow, Brickhill Church Hill, very nearly 700 ft. high, and seen below Northampton (an "Ordnance survey" station, I was told, about 1800). Bletchley Church (from a very out-of-the-way village, now a still more important railway station), and Fenny Stratford Chapel, both connected with Browne Willis, deserve the notice of the antiquary.

J. D. PARRY.

CONTENTS OF CONICAL HEAP OF BALLAST.

YOUR correspondent, Mr. Haynes, has given correct rules in this case; but I think an alteration in the formula as below might make it less troublesome in practice,—

$$(d^2 + 'd^2 + d'd) \times \cdot 7854 \times \frac{h}{3} = s$$

or, in words, add together the square of each diameter, and the product of the diameters, and multiply the sum by ·7854 and by a third of the perpendicular height. JOS. A. DAVIES.

BUILDERS AND DISTRICT SURVEYORS.

SIR,—I forward the annexed, thinking you may print it in your paper. If builders who do not pay till they are summoned become known to the district surveyors, it may save trouble.

N. E. J.

At the Wandsworth police court, June 25th, 1868, before Mr. H. S. Selfe, Mr. George Godbolt, King's-road, Chelsea, was summoned for non-payment of the sum of 5*l.* 5*s.* due by him to the district surveyor for the district of Central Lambeth and part of Battersea for his fees in respect of a certain building of which he the said George Godbolt was the builder. Ordered to pay the sum of 5*l.* 5*s.*, with 12*s.* 6*d.* for costs, forthwith.

THE WALWORTH-COMMON ESTATE.

SIR,—Will you kindly allow me to endorse the opinion of "One of the Number," in your last week's *Builder*, that the Guardians should appoint a professional man, of high standing and character, to report upon the plans? It appears to me quite unreasonable to expect that, without such assistance, they will be able to arrive at a just and satisfactory conclusion. I would also beg to submit other suggestions, which I think should be taken into consideration, either by the Guardians or by the gentleman who may be appointed as aforesaid.

1. That all plans not strictly adhering to the "Instructions" should be put out of the competition. If they should be more suitable plans than the others, let the competition be decided regardless of them, and the Guardians afterwards adopt such one of them as may prove the best.

2. That those plans which disregard the laws for the better local management of the metropolis in having only one entrance to some of the streets be also set aside.

3. That in considering the relative merits of the designs the plan for laying out the land should be the first consideration, and the elevations of the buildings the next, as these may be varied *ad infinitum*.

4. That in calculating the income to be derived from the estate (which is doubtless a subject of importance) care should be taken not to give the sole preference to the amount of frontage regardless of the space left open by fore-courts, gardens, or yards for ventilation.

5. That short streets enclosing square blocks of buildings, with plots of but little depth, must be very objectionable on the score of health.

6. That courts, alleys, and small plots must be very detrimental to the health and respectability of the neighbourhood, and calculated to increase the poor-rates and reduce the frontage value.

7. That right-angled streets and plots are usually most advantageous and economical.

ANOTHER COMPETITOR.

* See p. 428, *ante*.

PORTABLE GAS-STOVES.

SIR,—The advantages of gas-stoves, especially in warm weather, are too obvious to require any comment. Where there is gas laid in a house, they can easily be made use of; but there are many houses, both in town and country, into which gas has not been introduced, and there they are unavailable, unless an apparatus is attached to them for generating gas. This can be easily done, as is shown by the great variety of portable gas-lamps for lighting purposes now manufactured; but I have not been able to find any gas-stoves with such apparatus, and I will feel much obliged if you, or any of your correspondents, would inform me where an article of the kind can be had. Spirit-lamps answer the purpose pretty well; but they are too expensive for general use; and, besides, they do not admit of the flame being regulated according to the degree of heat required. I have spoken about this to gas-engineers, but none of them appeared to see the importance of it, though I feel satisfied that if a thing of the kind, not too expensive, were to be brought out, it would command a very large sale.

A LODGER.

LINCOLN AND NOTTINGHAM DISTRICT SCHOOLS.

SIR,—As there is at present a competition advertised emanating from Lincolnshire, it may interest your readers to know how a similar thing has been managed there.

The Lincoln and Nottingham Union Schools were advertised, and several plans submitted, ranging in estimate from 12,000*l.* to 22,000*l.* The committee met, and, I believe, rejected all the "high-priced" plans; that is, not the most elaborate ones, but those whose authors had given what they believed to be the real cost. No test, as I hear, was taken, but the superficial feet of each design I append below, as sent in a printed list to me:—

	Super. feet.	Estimate.
Cooke	9,176	... £22,000 0 0
Giles & Biven	6,044	... 19,900 0 0
Peyton & Co.	8,486	... 19,500 0 0
Hendray & Kingchurch	3,684	... 18,650 0 0
Lee	11,562	... 12,000 0 0
Peck	8,764	... 12,000 0 0

Out of this list the committee selected the design of Mr. Peck, covering 8,764 ft. super., and to cost—everything being of the best description—12,000*l.*

I may mention that heights and spaces for beds, &c., are in all the designs alike, so that a comparison is easy, and a notion may be formed that about 1½*d.* per cubic foot is the calculation of the supposed cost.

Some of your readers may perhaps know something of the value of buildings of this kind, and will give their opinions on the subject. I would, with your permission, ask them to do so, believing that the time has come when architects may fairly ask from fellow competitors a fair and proper estimate of the designs they submit. I trust you will aid this object.

A COMPETITOR.

"SINK TRAPS."

YOUR correspondent "M. A. B.," in your issue of the 13th ult., complains of the inefficiency of the bell-trap: this I have for some time also found to be a great objection in house-drainage, in which I have had much experience, and have been led to adopt another principle (and do away with the bell-trap where practicable), viz., in connecting the waste-pipe from slopstone with the branch drains, to fix an ordinary S syphon outside the building, and allow the waste-pipe to dip into the syphon, which being much larger (say 3 in. to 4 in. diameter) than the ordinary bell-trap, we invariably find that they seldom or never choke up, and the syphon being placed outside the building is easy of access should it ever be necessary to examine it.

The above method has the great advantage of economy over the other, as we can have the syphon fixed complete for 1*s.* 9*d.* each.

J. B.

THE PROPOSED NEW LAW COURTS.

MR. GOLDSMID, in the House of Commons, called attention to the recent appointment of architects for the new Law Courts, and especially to the claims of Mr. Barry to the appointment, and moved that a select committee be appointed to inquire into the subject.

Mr. Gladstone said that to appoint a committee would be to recommence from the beginning an operation which had been extremely laborious and complicated, and there would be less chance of arriving at a more satisfactory conclusion than that which had been already come to. The only prudent course would be to leave the matter in the hands of the Government, for them to act upon their own responsibility.

Mr. Lowe thought it would be an unwise course to incur a large expenditure by a renewed inquiry into this subject, though at the same time he believed the Government had missed their way, and had not arrived at the conclusion which they ought to have done. They had set aside the fact that Mr. Barry's plan was the best in regard to its internal accommodation, and they had given the work to an architect whose plan the judges had reported possessed the least merits in that respect.

Sir R. Palmer, as one of the judges, said that while there could not be any doubt that it was a main and leading point that they should attend to the internal uses for which the building was intended, yet they certainly did not think they were to pay attention to this point alone. They considered that where the internal arrangements clashed with architectural effect, they were in that case to give a preference to the former; but it would have been a great injustice to judge the plans merely upon the simple point of their internal arrangements. Though Mr. Barry's plan was the best in this respect, yet unless it had been also the best in other respects how could they recommend it for absolute adoption? As to the point before them, it was a fallacy to suppose that the Government were to be bound by the opinion of the judges, who had failed to make any selection of a plan as judges.

Mr. Hope did not think any good would be attained by appointing the committee asked for.

Mr. Tite thought that the two architects who had been bracketed together might have had the building entrusted to them jointly. He did not think the building could be placed on the site that had been prepared for it, and he suggested that the Chancery Courts should be placed on the site, and that the Law Courts should be placed on the Thames Embankment, Mr. Street being entrusted with the erection of one, and Mr. Barry with the other.

Mr. Powell hoped that whatever they did they would not have the court in two divisions.

Mr. Winterbotham believed that the difficulty had arisen by adding Messrs. Shaw and Pownall to the five judges already appointed. Messrs. Shaw and Pownall were added at the request of the London architects from a trades union feeling against Mr. Waterhouse, who came from another part of the country, and whom they wished to exclude. He supported the reference to a select committee.

Mr. Childers hoped the suggestion of having two courts would not be listened to.

After a few words from Mr. C. Bentinck,

Mr. Pease said Mr. Street had only proved himself a successful architect of churches.

Mr. M. Chambers thought, as no two members were agreed upon this subject, the best thing would be to refer the matter to a select committee.

Lord J. Manners said the proposal of the hon. member for Honiton (Mr. Goldsmid) was a very large one, for he desired a committee to inquire into the recent appointment of architects to proposed new buildings in the metropolis. It must be evident that no such inquiry as that could be carried on with satisfaction at the present period of the session. When the judges could not make any award, the contract between the architects and the Government was at an end; and if they had thought fit they might have called for a new competition. They considered, however, that it would be unwise to pursue that course, and accordingly they endeavoured to come to a decision which in the main should be fair, and at the same time give security to the country and the profession that a proper building would be erected. He reminded the House that a petition had been presented from the judge and officials of the Divorce and Probate Court, stating that although they were to occupy one-fifth of the new building, yet the arrangements for them were of a most inefficient character in Mr. Barry's plan. Therefore, if the Government had appointed Mr. Barry to be architect of the interior and Mr. Street to be architect of the exterior, this result would have followed; Mr. Street would have been able to carry out his own design, while Mr. Barry would have had the mortification of finding that his plan for the interior would have to be materially altered before it would give satisfaction to one important branch of the new courts. To re-open this subject after the decision of the Government would only make the complications worse.

The motion of Mr. Goldsmid was negatived by a majority of 90 to 45.

A PREMATURE DEATH.

THE *Sydney Morning Herald*, of May 1st, records at some length the melancholy death, at the age of 29, of Mr. Thomas Duckett, late a pupil of Mr. Thornycroft, and a young sculptor of great promise, who, having completed his studies and made the journey to Rome, was preparing for the contest in the grand arena, when he was recommended by his medical adviser to visit the Australian Colonies for the purpose of averting consumption. But the voyage was taken in vain. During his absence his young wife died, and two little ones are left orphans.

In Sydney the deceased artist has left several works which are highly spoken of, such as those of the "Angels of Death and Mercy" for the gate of the Haslem Creek Cemetery, &c. The numerous sketches and statuette groups which he has left behind exhibit much delicacy of taste and clever composition, and it is to be hoped some of the latter may be rendered in bronze or Parian for the benefit of the children. His amiable disposition secured him many friends, and he was followed to his final resting-place by some of the principal literary men and officials in Sydney.

THE "OWNERSHIP" OF ST. PAUL'S, CAMDEN-SQUARE.

IN the Court of Common Pleas (sittings in Banco, before Mr. Justice Willes and Mr. Justice Byles), the Vestry of St. Pancras (Appellant) *v.* Thomas (Respondent). The facts of this case were these:—The respondent, the Rev. A. R. G. Thomas, was incumbent of the church of St. Paul, Camden-square, and the Vestry of St. Pancras summoned him before Mr. Barker at Clerkenwell Police-court to show cause why he should not pay 69*l.* 6*s.* 10*d.*, the estimated cost of making a new road and footway round the land on which his church stood. The question of the respondent's liability depended upon whether he was "owner" of the church and land within the meaning of the Act of Parliament. The churches in the parish of St. Pancras are under the management of a board of trustees, and these gentlemen received the pew-rents of the respondent's church, and paid him his stipend out of the amount so received. On the one hand, it was said that the legal estate was in the respondent; but, on the other hand, it was contended that the possession of the legal estate did not necessarily imply an ownership within the meaning of the statute. The Metropolis Local Management Act defined the "owner" as the person who received the rack-rent. The appellants said that the respondent was entitled to vote for a member of Parliament in respect of his interest in the church; but to this he replied that he claimed to vote not as the owner of the land, but in respect of his interest in the benefice. Mr. Barker, after hearing the parties, decided in favour of the respondent, and dismissed the summons. The question now raised for their lordships was, whether he was right in his decision. The court held that the respondent was not liable, and they dismissed the appeal.

SANITARY REGULATIONS FOR WORKSHOPS AND WORK-PLACES.

THE Sanitary Committee of the Islington Vestry have issued a notice, under the advice of Dr. Ballard, their medical officer of health, a portion of which we may usefully reprint:—

"SANITARY ACT, 1866, AND WORKSHOPS' REGULATION ACT, 1867.

The following are among the more important requirements of the above Acts, which are applicable to work places not under the operation of the Factory Acts. It is the duty of the Vestry to see that they are observed in this parish.

1. Work-rooms and work-places must be kept in a cleanly condition.

2. They must be well and effectually ventilated, so as not to endanger the health of the persons employed therein.

[The Medical Officer of Health will regard any workroom as not sufficiently ventilated in which an unpleasant or animal odour is perceptible, or in which the temperature is found materially to exceed that of the external air in the warmer months, or 60° in the colder months of the year.]

3. No overcrowding of workrooms is permitted; that is to say, the number of persons working in any room must not be so great as to endanger their health.

[The Medical Officer of Health will regard any workroom to be overcrowded, in which for the number of persons employed therein a sufficient ventilation as above described cannot be constantly maintained without exposure of the work-people to dangerous draughts; also any room in which a floor-space of at least 36 superficial feet cannot be allotted to each person, or in which the cubical space of the room is such as that at least 300 cubical feet of air are not allowed for each person.

The superficial floor space of a room is found by multiplying its length by its breadth; and the cubical space of a room by multiplying the result of this by its height.

For example:—A room 25 ft. long and 15 ft. wide = 375 ft. of floor space, may (if properly ventilated) be occupied by ten work-people, provided that it is not less than 8 ft. in height = cubical capacity of 3,000 ft. If less than this in height, the floor space must be proportionally larger, or the number of occupants reduced.]

An infringement of any of the above three regulations will render the master or mistress liable to prosecution under the 10th section of the Sanitary Act, 1866, and the Nuisances Removal Act."

THE CONSTRUCTION AND FITTING-UP OF METROPOLITAN WORKHOUSES.

THE Poor-Law Board have just issued a circular letter informing the Guardians of the Poor in London, that they have prepared instructions for the guidance of architects in the construction of workhouses and workhouse infirmaries. These instructions are intended "as a general guide to the architect employed by the Guardians, and are not designed unduly to fetter his discretion in the preparation of plans for the consideration of the Guardians, or to apply to every detail connected with the construction of the workhouses;" but the Poor-Law Board say that "they will generally be guided by these instructions when considering plans which may be submitted them for their approval." With regard to the fittings, the circular says:—

"It appears to the Board to be desirable that there should be a nearer approach to uniformity in the mode in which workhouses are furnished, and they are of opinion that whilst for the ordinary wards only a few conveniences, and those of a simple character, are required, the sick wards should be more carefully furnished, and all the necessary medical appliances supplied. It is the duty of the medical officer, under the regulations of the Board, to suggest the number of articles that may be required from time to time, and they do not doubt the Guardians will duly consider such suggestions, or that they will be made by the medical officer with all reasonable discretion and with due regard to economy."

CHURCH-BUILDING NEWS.

Arnold.—The church of Arnold, a village in Notts, has been closed for some time past for general restoration and improvement, and is now re-opened. The restoration has been at present but partial, as there yet remain the chancel and porch and other parts in an incomplete state. The work has been carried out under the management of Mr. Henry Currey, of London, the architect for the new St. Thomas's Hospital, and of Mr. S. Dutton Walker, of Nottingham, architect. Owing to a dispute with the contractor, and other difficulties, the work has been more than two years in progress. Amongst other difficulties with which the architects had to contend was the insecure state of the arcades, which were at least 10 in. out of the perpendicular, and which upon examination were found to be absolutely without any solid foundation, owing to original faulty construction, and to the numberless burials which had taken place. Sawgrooves were cut in the stonework of the inclining piers, and the whole arcade was heeled over until it had attained a perpendicular line; and this was done without crack or flaw, every pier being underpinned with a solid foundation. The whole of the stonework and tracery of the exterior of the building has been repaired, the gallery at the west end have been cleared away, new benches have been placed in the nave and aisles, new floors laid, the windows re-glazed, new roofs constructed, &c.

Gretton.—The church here has been rebuilt and re-opened. It is situated close to the high road between Winchcomb and Tewkesbury. Its tower and spire, which rise to the height of about 100 ft., are visible from most parts of the surrounding country, and may be discerned even so far off as Malvern. The plan of the church consists of nave, chancel, south transept, tower (the lower part forming a porch), and a vestry on the north side of the chancel, from which it is separated by an arch. The design is Decorated, the walling being constructed of Guiting stone, with Bath stone dressings. The spire is wholly of the latter material, and the roofs are covered with Staffordshire tiles. The tower adjoins the transept, and is square at the base: at the belfry stage it diminishes to an octagon, which form it preserves to the top. The windows are in part single lights, and in part coupled. Three of these windows are filled with stained glass, by Messrs. Hardman, and it is contemplated to fill the remainder also in like manner. In the gable of the transept is a rose window, consisting of a series of circles with trefoil cusps, arranged round a central circle, also cusped, the whole being comprised in an outer circumscribing circle. Of similar character, though differently treated, is the west window, which is a large composition of four lights, under a pointed head, and having lofty jamb mouldings. In this window, as well as in those of the apse, chancel arch, and principal doorway, are introduced shafts of various, coloured stone. The roofs throughout are open and differ in design in the several parts of the building. In the chancel the principals spring from stone corbels, carved as angels bearing shields, and picked out in gold and colours. The seats in the nave and transept are of deal, those in the chancel are of oak, as are also the pulpit and desk. The floors are paved throughout with tiles, plain and encaustic, in various patterns designed by the architect, and the chancel is lighted by a brass corona. A medal has been struck as a memento, and presented by Mrs. Dent to those who have been most engaged in carrying out the work. It bears on one side a view, in relief, of the church, and on the other an inscription. Mr. J. Drayton Wyatt, of London, was the architect, and Messrs. Collins & Cullis, of Tewkesbury, were the builders.

Clifton (Bristol).—The new church, dedicated to All Saints, has been consecrated. It will, when completed, be one of the largest in the city, taking the place, so far as extent and solidity of construction go, between churches of an ordinary size and a cathedral. When finished it will accommodate 1,200. At present, however, the structure consists of only a portion of the original design. The whole design, when carried out, will cost somewhere about 20,000*l*. The plans were made by Mr. G. E. Street, who has designed the structure in the transition period (Gothic). For some time the work was left in abeyance. The chancel, with its side aisles, the vestries adjoining, and the pillars of Mansfield stone supporting the nave, were erected, and the foundation of the whole building built up to a certain height. Recently a temporary nave, for the accommodation of about 500 persons, and constructed so as not to interfere with the erection of the original design over it, has been formed of stonework, inside the pillars of the original design. The pillars supporting the arches and the chancel are formed of alternate bands of Pennant, red sandstone, and freestone. The whole of the chancel is paved with Minton's tiles.

Sedgeberrow.—For some months past the parish church of Sedgeberrow has been closed during the progress of extensive works of restoration and decoration, which have been carried out at the sole expense of Mrs. Barber, widow of the late rector of the parish, as a memorial of whom the work was initiated. The church consists of nave and chancel only, the nave terminating at its western end in an octagon tower, surmounted by a spire of about equal height, and reaching an entire altitude of 104 ft. The exterior works of the present restoration comprised the rebuilding of about two-thirds of this spire, which has been fitted with Newell's lightning conductor, carried through the vane, and a galvanised iron cross, the entire reconstruction of the roof, and the rebuilding from the window-heads upwards of the exterior walls. Entrance to the interior is obtained through a porch, in keeping with the rest of the edifice. The roof is an open ribbed one of English oak. The seats are uniform and open, with pierced backs and carved ends. The floor is of English oak, the nave and chancel being paved with Minton's red and black encaustic tiles, interlaced with stone bands. The nave and chancel are divided by a carved oak rood-screen, filled in with tracery. Most of the windows throughout the church have been, and the rest are, we understand, in due course to be, filled in with painted glass, painted by Mrs. Barber herself. The works have been carried out at a cost of upwards of 2,000*l*. The architect employed was Mr. W. Butterfield.

Bletchley.—The parish church of St. Mary has been restored and re-opened. The whole of the exterior has been restored in Ancaster and Bath stone. The interior has also been restored, the incrustation of brickwork and other materials used in the "churchwardening" process having been removed. The most conspicuous alteration is in the chancel, all the windows in which, together with the doorway, have been altered so as to harmonize with the original character of the building. In the east side is a five-light traceried window, with trefoils and quatrefoils in the head. There is a reredos, consisting of a canopied centre panel, surmounted by a floriated cross, and two narrow side panels of Painswick stone, with carved caps and bases, and Mansfield red shafts. In front is a detached cross of Mansfield stone, carved, backed by a painting of radiated nimbus in the centre panel, the side panels being diapered, with an angel in the centre beneath the cusping. The chancel is fitted with return stalls of carved oak. The ceiling of the chancel, "painted," says Lipscomb, "with extravagant expense, but little taste," representing the twelve Apostles, has been preserved, partly in deference to the memory of Browne Willis, and partly on financial grounds. The body of the church has been fitted with oak seats, and a paving of wood blocks under the seats, the other portions of the floor being covered with Minton's tiles and the old paving. The old tower had fallen into a state of dilapidation which was almost dangerous. The "four handsome pinnacles of the angles," commemorated by Lipscomb, have been removed, as out of character with the rest of the building. The clearstory windows and parapets have been entirely renewed. The whole of the work has been executed (under the superintendence of the architect, Mr. W. White), by the contractor, Mr. Kimberly, of Banbury; the carving was done by Mr. S. Allen. The entire cost has been 2,300*l*. The chancel has been restored by the rector, at a cost of 550*l*. An organ, designed by the Rev. W. G. Corker, of Fenny Stratford, and built by Mr. T. Atherton, Leighton Buzzard, has been placed in the north aisle.

Limbury.—The new district church of Limbury-cum-Biscot, by Luton, has been consecrated by the Bishop of Ely. The church, which has been built at the sole cost of Mr. John S. Crawley, consists of a nave 58 ft. by 26 ft., a chancel 35 ft. by 20 ft., a north chancel aisle 16 ft. by 10 ft., divided from the chancel by a double arch, supported on a polished marble pillar, an organ-chamber, a sacristy, a north porch, a double bell-cote, and a warming crypt. The style is Decorated. The walls, which are 3 ft. and 4 ft. thick, are faced inside and out with light-coloured bricks, relieved with others of a deeper tone, and cased with chalk. All the dressed work is out of freestone. The roofs are open-framed of pitch pine, covered with heavy green slates, and are boarded and felted. The benches are also of pitch pine. The aisles are laid with encaustic tiles, and the chancel-hall below the windows is faced with similar tiles supplied by Mr. Godwin, of Hereford. The pulpit and font are carved, the former diapered. An oak screen separates the chancel from the nave, and the chancel is fitted with stone sedilia, piscina, and credence. The church was erected by Mr. Gough, of Bishop's Castle, builder, from the designs and under the superintendence of Mr. T. Nicholson, of Hereford, the diocesan architect.

Curbar, Derbyshire. — All Saints' Church, Curbar, has been consecrated. The church is a Gothic structure, which has been erected by the exertions of the Rev. J. Stockdale, the incum-

bent of Baslow. The edifice is completed and opened at a cost of from 1,800*l.* to 2,000*l.* There still remain to be built a parsonage and schools, towards which there is a sum of 200*l.* or 300*l.* in hand. The Duke of Rutland gave the site. The architect is Mr. A. Salvin, jun., of London; and the builder Mr. Ashwell, of London.

Bebington.—The Bishop of Chester has consecrated the Church of England portion of the new cemetery at Bebington. The cemetery is situated about the centre of the parish, some 500 yards from Old Chester-road, on the south side of Rock-lane, which leads to Higher Bebington. There is a main entrance from Rock-lane, and a drive, 24 ft. wide, leading to the chapel, which is erected on the crest of the ground forming the main entrance. On either side, about 100 yards inside the ground, and the same distance apart, facing each other, are the Nonconformist and Roman Catholic chapels, the Nonconformist being on the left hand side when you enter.

Neath.—We are requested to state that the gas-fittings of St. David's Church were provided by Messrs. Hale & Sons, of Bristol—not Hall, as misprinted.

DISSENTING CHURCH-BUILDING NEWS.

Lindley.—The new Wesleyan chapel, which is now nearly completed, was recently opened. It has been designed in the Geometric style, by Mr. George Woodhouse, of Bolton. The principal façade faces East-street. It is set back some 30 ft. from the causeway. The approach is flagged with sawn flags. This front has two side and one central entrance-door openings, each having a flight of three steps to the threshold. The ground-floor story has a frontage of 60 ft. To the left, with its west and south front, is the tower, 13 ft. square on plan. Above the foundations of this tower, which have been sunk below the workings of an old quarry, is a base course, 2 ft. 6 in. deep, the upper part of which is splayed and moulded. The whole is crowned with a light ornamental cornice on the four sides. The principal decorative feature in the front is the large four-light window. It is 22 ft. high and 11 ft. wide. The whole of the windows are glazed with selected rolled glass, in diamond quarries, with coloured borders, executed by Messrs. Edmundson, of Manchester. The outer walls throughout are built of pitch-faced wall-stones from the Elland-edge quarries. The roof is a steep Gothic pitch, rising 30 ft. high from the square. The roofs are all boarded and covered with felt, on the top of which are laid the slates, in blue and green bands. The ridge has an ornamental ridge-cresting, set in cement. The following contractors have executed the several works:—Masons' work, Messrs. Thos. & Geo. Rhodes; joiner and carpenters', Robert Whiteley; plasterer's, I. Jowitt; plumber's, H. Garton; painter's, John Brook; slaters', Goodwin & Sons; gasfittings, J. W. Dovery, of Manchester. Accommodation is provided for 650, and the cost of the whole works, not including architect's commission, is expected to be about 3,600*l.*

York.—The new Baptist church has been opened for divine worship. The edifice is situated in Priory-street, Micklegate, and will accommodate about 700 persons. The building stands with its side to Priory-street. The style is the Early Decorated. The plan consists of a nave and aisles, with transepts. The extreme length of the nave is 78 ft.; the width, 24 ft. 6 in.; height to the eaves above the clearstory, 32 ft. 6 in., and to the collar beam of roof (where it is ceiled) 44 ft. 6 in. The extreme width is 44 ft. between the aisle walls, and 49 ft. 6 in. across the transepts. The arcade below the clearstory is of brick, with plaster mouldings, and supported upon cast-iron columns, with foliated capitals. A gallery has been erected over the aisles and across the ends over the vestibules. The front of the galleries is in pitch pine, with Quebec pine panels in the lower part, and ornamental ironwork in the upper part, the framing being relieved with ornamental chamfering. The iron columns supporting the arcade divide the gallery front into bays, as they are seen the entire height. The seats are all open benches, with ornamental ends. Behind the church, with its end to the street, is a lecture-room, 40 ft. by 21 ft., ministers' vestry, lobby and staircase to schoolroom, which is 45 ft. by 25 ft. The timber work of the roof of both church and school is exposed to view. The exterior is faced with stone, the dressings in Whitby stone, and the walling of Bradford sets in thin beds. The side being to the street is the principal front. There is a tower at the entrance corner towards Micklegate, containing one of the staircases to galleries. The tower itself is to the top of the parapet 54 ft., and to the top of the pinnacles 61 ft. It is covered with a high-pitched roof of ornamental slating, having iron cresting on the ridge. The architect was Mr. W. Peachey, of Darlington. The contractors for the several works were for the brick and stone work, Messrs. C. Bowman & Co.; plastering, Mr. Croft; slating, Mr. T. F. Wood; carpenter and joiner's, Mr. W. Bellerby; plumbing, gasfitting, and glazing, Mr. J. Dickinson; painting, Mr. Poulter; smith and ironfounder's, Mr. Bousfield; and warming, Messrs. J. Longbottom & Co. The cost, including everything but school fittings, was 3,538*l.*, and the total cost, including the land, about 5,000*l.* This does not include the cost of the organ (nearly 200*l.*), erected by Mr. Postill, organ builder, of York.

ROMAN CATHOLIC CHURCH BUILDING NEWS.

Longton.—The corner-stone of a new church has been laid here in the presence of Dr. Ullathorne, Roman Catholic Bishop of Birmingham. The site of the new building is Heathcote-road, a short distance from the existing edifice. The new church will be in the Early French Decorated style of Gothic architecture, and will accommodate 1,000 persons. It will be erected of Staffordshire red brick, with Bath stone and Hollington stone dressings. It will be a parallelogram in form, the nave being 138 ft. long by 36 ft. wide, with two aisles 110 ft. long by 14 ft. wide. The external height of the building is to be 78 ft. The nave will terminate in a pentagonal apse, and will be divided from the aisles by nine equilateral arches resting upon columns 17 ft. high, formed of Mansfield and Painswick stone. The sanctuary is to be raised 4 ft. above the body of the church, at the end of which will be placed a reredos, made of Caen stone, with marble columns in various colours, and cappings of the same material, the gift of a private benefactor. The sides of the sanctuary will be lined with polished oak stalls, and the pavement will be laid with Minton's encaustic tiles. The roof over the sanctuary is to be formed with a concentric groin. The rest of the sanctuary will be covered with a timber roof decorated. The nave is to be divided into eight compartments by framed and moulded principals, with painted and gilt iron roses at the several junctions. The same will be divided and sub-divided with framed and moulded ribs, the intervening spaces being filled with plaster, which will also eventually be decorated. The organ-loft will be placed at the west end, and supported by a stone arch extending the entire width of the nave. Above the organ will be placed a western rosette window 18 ft. in diameter. The roofs will be covered with green and purple slates in various devices. Attached to the church are to be extensive sacristies, and also a presbyter for three priests. The plans further contemplate a south-west tower and spire. Independently of the site, the cost of the work already contracted for is about 5,000*l.*; this being exclusive of fittings, carving, and the contemplated tower and spire. The architect is Mr. E. W. Pugin, of Ramsgate; and the builder is Mr. Geo. Heveningham, of Wolverhampton.

STAINED GLASS.

St. Michael's, Worcester.—The chancel window of St. Michael's Church, Worcester, has been filled with stained glass by Messrs. Done & Davies, of Shrewsbury. The design was chosen and executed under the direction of Mr. H. Bennett, who presented the window to the church. The subject, which occupies the three openings of the window, is the Crucifixion. In the upper part of the centre opening is our Saviour on the Cross, looking towards the penitent thief, who is in the side opening on His right hand, the impenitent thief being in the side opening on His left. At the foot of the cross are Mary Magdalene and His mother.

St. John's, Cowley.—A stained-glass memorial window of three lights has just been placed in this church. The subjects are the Marriage at Cana, the Man at the Pool of Bethesda, Raising the Widow's Son, Christ blessing little Children, and, in the centre, our Lord raising Lazarus. The detail of the window is grisaille, the subject in the centre being surmounted by a canopy. It was designed and executed by Mr. Baguley, of Newcastle-on-Tyne. The east window of the same church is in hand, by the same artist, for the Rev. R. M. Benson, of Cowley, and will shortly be erected.

Abbey Church, Cambridge.—One of the windows of this church has been filled with stained glass in memory of the late Mrs. Preston, wife of Mr. T. Preston, of the Abbey. The centre opening is filled with the Crucifixion, and our Saviour is surrounded with an aureole and glory, on a blue and ruby ground-work; the latter representing heaven and the former earth. In the trefoil above is an angel holding the emblem of the Trinity; at the base is the lamb, an emblem of our Saviour, with ornamental work. The left-hand opening contains the Nativity; the right, the Baptism. The whole are under Early canopies. At the base of the outer subjects is the Alpha and the Omega, surrounded with ornamental ground-work. In the trefoil above there are angels holding scrolls. The artist engaged was Mr. Constable, of Warwick.

Kimbolton Church.—A stained-glass window from Messrs. Avery & Sons, London, representing the Resurrection of our Lord, and the appearance of the Angel to the Marys at the Tomb, has been placed in one of the windows on the south side of the church. This window is erected to the memory of the Rev. T. Ainsworth, the late vicar.

Bulkington Church, near Nuneaton.—There has been recently fixed in this church, by Messrs. Holland & Son, of Warwick, a stained-glass memorial window containing the subjects of Healing the Sick and Raising Lazarus to Life, surmounted by canopies in a floriated treatment containing figures of Faith and Hope, angel in tracery holding a scroll, with the words, "Faith is the substance of things hoped for." An inscription is placed at the foot of the window.

SCHOOL-BUILDING NEWS.

Carlton (Nottingham).—The chief stone of new national schools for Carlton has been laid. When completed they will accommodate 400 children. The schools will be situated almost in the centre of the village. There will be three rooms, 50 ft. by 20 ft. each, the class-rooms behind. Messrs. Goddard & Son, Lincoln, the architects, propose to erect the buildings in the Tudor style. The builders are Messrs. Key & Cave, Carlton.

Stratford, Essex.—New schools are now in course of erection in the district of St. Paul, Stratford. They are being built of stocks with red brick dressings. The contract has been taken by Mr. James Rivett, of Stratford, builder, for 2,493*l.* Mr. Henry Ough is the architect, and the building is being erected under his superintendence. The foundation-stone was laid, on the 6th instant, by Mrs. T. Fowel Buxton, whose family have been great benefactors to the district. St. Paul's district contains more than 10,000 inhabitants, principally mechanics and labourers, without any schools; and it is feared, from the great difficulty experienced in making up the present deficiency of 500*l.* it will be necessary to postpone the erection of the boys' and girls' school.

Prittlewell (Chelmsford).—The new national schools recently erected are now open. The building, which is Ecclesiastical in style, is situated at the south end of the church, and is in keeping with its architecture and general character. The architects were Messrs. Wenham & Blake, of Westminster, and their designs have been carried out by Mr. Carter, of Rochford, builder, at a cost of 1,500*l.* The school-room, which can be divided by a temporary partition into boys' and girls' rooms, is 54 ft. long by 24 ft. wide, and will accommodate 180 children. The benches have been constructed under the superintendence of Mr. Edmunds, of London. In their ordinary position each forms a bench with a lean-to behind, but the back can be opened so as to form a level desk for reading, and by touching a spring this becomes a writing-desk sloping at an angle of 45 degrees, while by joining two benches together with the desks in the level position a table is formed, 10 ft. long by 4 ft. wide, with seats on each side. Opening from the schoolroom is a class-room, 18 ft. square, which is also intended for readings, con-

certs, and other parochial purposes, and is provided with a moveable platform suitable for such occasions. Adjoining the schools is a residence for the master and mistress, the style being uniform with that of the school buildings.

Chester.—The Bishop Graham Memorial Ragged School, in Princess-street, is now completed and opened. The building has been designed by Mr. W. M. Boden, of Chester, architect; and Mr. Edwin Harrison was the builder. The elevation presents a porch with two doors, divided by a shaft of slate, with carved stone capital. Above the doorway is a statue (executed by a Chester artist, Mr. Griffiths) of the late diocesan, Dr. Graham, as a tribute to whose memory this school has been erected.

Miscellanea.

MEMORIAL TABLETS.—At the annual meeting of the Society of Arts, it was stated that leave has been obtained to affix tablets on the former residences of Benjamin Franklin, Sir Joshua Reynolds, Lord Nelson, and James Barry, but that the progress in fixing these and others had been delayed by experiments in the manufacturing, which Messrs. Minton, Hollins, & Co. have been making.

ELECTRIC ORGAN.—An electric organ, which will shortly be opened by Mr. Glenn Wesley, is being built by Bryceson Brothers & Co. for Christ Church, Camberwell. This organ is to be placed in a chamber on the south side of the chancel above the vestry, but the organist will sit on the opposite side amongst the choir, some 50 ft. distant from the organ. The electric system is forthwith to be applied to the organ in St. Michael's, Cornhill, Messrs. Bryceson's contract having been accepted for the entire reconstruction of this large organ. The manuals will be placed at a distance of 30 ft. from the instrument. Various pressures of wind and other improvements will also be introduced.

CROPS FROM LONDON SEWAGE.—At the usual meeting of the Metropolitan Board of Works, the chairman said he had received a letter from Mr. Hope, of the Essex Reclamation Society, in reference to the effects of sewage manure applied to the land. In this letter Mr. Hope said,—

"Herewith I have the honour to send duplicate specimens of the samples of our crops, which we are exhibiting at the show of the Essex Agricultural Society this day. Some of the samples are quite unprecedented. The sample of wheat is grown on a piece of land which bore the same crop last season. The oats, which are perhaps the most extraordinary ever seen, have been produced by the unexhausted manure left on the land by the application of 4,000 tons of sewage per acre last year to a piece of land from which we got last season 71 tons of grass per acre. This is a conclusive refutation of those enemies who pretend that sewage farming exhausts the land. I trust that these samples will be interesting to the Board."

Some specimens of wheat, barley, oats, potatoes, and strawberries accompanied this letter, and were of extraordinary size and quality.

THE MARQUIS TOWNSHEND'S SCHEME FOR IMPROVING THE GOVERNMENT OF THE METROPOLIS.—A Bill has been presented to the House of Lords by the Marquis Townshend, "to provide regulations for the government of the metropolis in certain matters." This Bill has been made sufficiently comprehensive to bring within its scope a variety of minor but more or less important matters which have not hitherto been deemed of sufficient importance to be dealt with by specific legislation. He proposes to make it a penal offence to drop fruit-peel on a footway; or to ride across a thoroughfare at a greater speed than six miles an hour. Other persons to be subjected to a penalty, not exceeding 40s., to be imposed upon the foregoing offenders are persons exhibiting or distributing pamphlets relating to diseases; women who place themselves outside of houses for the purpose of cleaning the windows; and persons who place flowerpots, &c., outside their houses without securing them. Crossing-sweepers not employed by the guardians of the district in which they ply their calling are to be put down, and a decided nuisance these beggars are. Another object of the Bill is to compel all stall-keepers to take out licenses. Other clauses impose penalties for retaining dead bodies in rooms occupied by living persons for more than twenty-four hours, and for conveying in hackney carriages persons suffering from infectious disease. Some of the clauses are not very clear in purpose, and others may not meet with universal approval, but the intention generally is good and useful.

A NEW DYE FROM GAS REFUSE.—A new golden-yellow dye, called dinitro-naphthyl, has been obtained from the naphthaline of gasworks, by treating a solution of muriate of naphthylamin and nitrate of potash with nitric acid.

LONDON'S DIN.—Sir: The intolerable noise caused by the wheels of vehicles on the London stones is distressingly painful to many; sleep is often broken by the rushing of midnight cabs and lumbering carts. With the view of silencing this turmoil and ceaseless din, I beg to propose as an experiment to twirl the wheel in a pan of hot thick glute, so as to coat the iron tire, then roll along the ground strewn with sand or fine gravel: it hardens quickly, and adheres tenaciously, if not wet or dirty. Any uniform thickness can be insured by a fixed scraper; the composition can be purchased at 2s. 6d. per can. It is gutta-percha and india-rubber dissolved by naphtha. The horse's hoofs and shoes might receive a covering with advantage.—R. T.

M. MUSARD'S STABLES.—The Paris papers give the following description of the mews belonging to M. Musard, of musical fame:—The visitor enters beneath a vast *porte cochère* into a vestibule entirely surrounded by glass, whence, without the trouble of moving from his divan, the master of the establishment can survey his equine property. On the right are eleven loose boxes, at present untenanted, as monsieur or madame are at their château in Normandy. On the left are the coach-houses containing the town carriages,—that is, Victorias, landaus, coaches, barouches, &c.,—all eight springs. The harness-rooms next occupy your attention: to reach them you pass the stalls belonging to M. Musard's saddle-horses, which are built round a court, the central ornaments of which are three marble fountains. The names of twelve of these fortunate animals are recorded. I spare you the recital, but beg to assert that carpets extend the whole length of the stalls, within which the animals are allowed to repose on ordinary straw.

THE IMPROVEMENT OF GLASGOW.—At a meeting of the Glasgow town council, in their capacity as City Improvement Trustees, held in Glasgow last week, some details were given with regard to the operations of the trustees for the improvement of the city. The committee reported that the loans obtained by the trustees amounted to 263,002*l.*, while the assessments received were in all 64,728*l.* The committee were still 200,000*l.* below the sum which the trustees authorized them to borrow. The total purchases of property amounted to 291,307*l.*, and the whole expenditure to 274,211*l.* A considerable number of houses had been taken down in the old parts of the city, with a view to open up densely populated and unhealthy localities, and the work of demolition was still proceeding. On the other hand, the committee had made arrangements for the erection of four blocks of dwelling-houses for the working-classes, and were prepared to proceed at once with a block capable of accommodating about 200 persons. It was hoped that when these houses were erected private builders would come forward and provide for the displaced population, in which case the committee did not propose to proceed further in this direction.

A SANITARY DEPARTMENT FOR INDIA.—At a recent meeting of the health section of the Social Science Association a paper on the necessity of establishing a department for public health in connexion with the Government of India was read by Mr. W. C. Bonnerjee, in which he pointed out the extremely unsatisfactory state of India from a sanitary point of view. Both in cities and in the provinces people die by thousands from preventible disease. In the provinces, he said, there is no drainage, nor even the open-air drains as in towns. No death-rate is kept, but it is known to all the world that the percentage of deaths in India is far above the common. There being no officer to advise the Governor-General in sanitary affairs, the recommendations of subordinate medical officers are not properly considered, and medical officers fear being considered "pushing men." He thought that India would improve in matters of sanitation if there were created a department to look after the public health, and he submitted a plan for the consideration of the Association, which was, that there should be a central board of health in the different provinces, with local boards all over the country, the presidents of the central boards to be members of the council of the governors.

THE SURVEY OF CITY PROPERTY.—An officer is about to be appointed by the corporation of London to make periodical and systematical surveys of the City property. The salary attached to the new office will be 400*l.* per annum.

DEMOLITIONS IN THE STRAND.—Several of the houses on the north side of the Strand, lying between Wellington-street and Catherine-street, are closed, prior to demolition, for the purposes of the new circus which is to be erected there. The building known as the Strand Music Hall is to be in a great measure rebuilt.

INFANT MORTALITY AT LIVERPOOL.—At a recent meeting of the local health committee, the chairman remarked that there was one curious feature connected with the medical officer's report, to which he wished to call attention. The number of deaths of children under five years of age was 50 per cent. of the total mortality, and it varied little from that every week. It was very extraordinary that the average should be so steady, but he had observed for a long time that the rate kept at 50 per cent.

STANGROUND CROSS.—There has been erected in the grounds of Stanground Vicarage an early cross, which had been doing duty as a footway over a narrow water-course in the village. Before the Conquest there was a church at Stanground, and the existence of the latter ornament raises the question among ecclesiologists whether the cross recently discovered may not have been erected before the time of William I. It is in fair preservation, and the thanks of the antiquary are due to the Rev. R. Cory for preserving this relic.

THE INAUGURATION OF THE LUTHER MONUMENT.—The inauguration of the Luther monument attracted to the small town of Worms sufficient visitors to fill a large capital. As many as 90,000 people were present, who, of course, could not be lodged in the town, and had to seek shelter as well as they could in the villages of the neighbourhood. Besides the Kings of Prussia and Wurtemberg, and several of the minor German Protestant princes, about 2,000 clergymen had arrived from all parts of Germany and Switzerland, and even from France, England, and America. The festivities were rather of a serious than a gay character.

SOCIETY FOR IMPROVING THE CONDITION OF THE LABOURING CLASSES.—The annual meeting has been held at Willis's Rooms, St. James's, under the presidency of the Earl of Shaftesbury. The report presented a favourable account of the success attending the various model lodging-houses belonging to the society, as well as several renovated dwelling-houses in different parts of the metropolis. The report was adopted, and addresses were given by the Right Hon. W. F. Cowper, the Hon. A. Kinnaird, Mr. Dimsdale, the Rev. Canon Nisbet, &c. The gold medal awarded to the society at the Paris Exhibition was presented to the president.

ILLUMINATING GAS has many impurities, of which perhaps the most objectionable is sulphur. Some tests have recently been made by Mr. Valentin, of the Royal College of Chemistry, to ascertain the amount of this noxious substance evolved in the combustion of given quantities of the gas supplied by various companies; and it has followed that the purest samples give as much as from 20 to 30 grains of sulphur for every 100 cubic feet consumed. An ordinary fish-tail jet may be said to burn 5 cubic feet an hour. From this and an inspection of his gas bills, a consumer may compute the quantity of brimstone that he diffuses through the atmosphere of his house in the course of a year.

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.—At the last meeting of this Society on Thursday—Mr. Samuel Carter Hall in the chair—Mr. Wyke Bayliss delivered the last lecture of the season, "On Certain Effects of Religion on Art." He showed that for good or evil religion and art have always been associated together, and in the refined idealism of Classic, the devotional character of Mediæval, the broad human sympathies of modern art, he traced the influences of the dominant religions under which these schools existed. Mr. Bayliss contended that Greek art, in its eclecticism, limited itself to few but grand types of human beauty; that Mediæval art added new types in heroism or saintly virtue; and that it remained for the modern schools to show that the theme of art should be as limitless as is the splendour of the creation.

PORTRAIT OF BROUGHAM. — A remarkable portrait of Lord Brougham, life-size, is given in the *British Workman* for July, price one penny. It is wonderfully like him as he appeared lately, and a capital specimen of wood engraving for the million.

THE TOWER OF ST. MARY SOMERSET CHURCH, UPPER THAMES STREET.—Mr. Bentinck, in the Commons, asked the Government whether they would obtain, by purchase or otherwise, the materials of the tower of St. Mary Somerset Church, Upper Thames-street, advertised for sale by tender, with a view to the re-erection of the tower in some fitting locality. In reply, however, Lord J. Manners said he thought the Government would not be justified in asking Parliament for the money for the re-erection of the tower referred to.

THE BRADFORD SUPPLY OF WATER.—A season of unusual drought has seriously diminished the store of water in the Stubden Reservoir, from which two-thirds of the supply for the high-level district are drawn. The waterworks committee at length decided to limit the supply from the high-level service to one day per week, commencing with the following day, when notices to this effect were extensively posted, and naturally created no little consternation throughout the district affected, which includes, besides the high-level parts of the borough, Thornton, North Bierley, Wibsey, Gomersal, Birstal, Tong, Tyersal, Pudsey, and Eccleshill.

BIRMINGHAM ARCHITECTURAL SOCIETY. — The annual meeting of this society was held on Thursday, the 25th of June; the president, Mr. John J. Bateman, in the chair. The report of the council showed that during the past session six papers had been read upon various subjects of interest, and that the present number of professional members is thirty-seven. Votes of thanks were awarded to the returning officers for their services, and the following gentlemen were elected officers for the ensuing year:—President, Mr. A. B. Phipson; vice-president, Mr. Y. Thomason; treasurer, Mr. J. J. Bateman; hon. secretary, Mr. B. Corser.

THE PEEL STATUE IN NEW PALACE-YARD.—Lord Elcho, in the Commons, moved that in the opinion of the House the Peel statue ought to be removed from Palace-yard. No one, he remarked, could say with truth that this statue was an ornament to the metropolis. It ought to be broken up and melted, and a better statue of Sir Robert Peel obtained, as this one was a disgrace to the memory of that great man. Mr. Beresford Hope said the friends of Baron Marochetti ought to have it put out of the way. There should be a first-class minister, with full control over all matters of art in the metropolis. Mr. Cardwell said the original statue was objected to by Sir C. Barry, as being too large for the site, and Baron Marochetti had made this one at his own cost, and obtained Sir C. Barry's consent to its erection on the present site. Other members expressed their opinion, and Lord John Manners said that, after the public faith had been pledged to the original subscribers to erect this statue, a very strong case ought to be made out before the House sanctioned a violation of the pledge. Lord Elcho's motion was agreed to by a majority of 182 to 71.

MASTERS AND WORKMEN.—The House of Lords, at one of its recent judicial sittings, gave judgment in the case of Weir *v.* Merry, which was a Scotch appeal raising the question of the liability of masters to their workmen for injuries sustained by the latter in the performance of their duties. The Lord Chancellor, in giving judgment (in which Lord Cranworth, Lord Westbury, Lord Chelmsford, and Lord Colonsay concurred) said that the liability or nonliability of a master to his workmen could not, in his opinion, depend on the question whether the author of the accident was or was not the fellow-workman, in any technical sense, of the sufferer. The duty of an employer, who did not take part himself in the work, consisted only in providing competent persons to do it, supplied with proper materials; that done, his liability ceased, and the fact that an injury had been caused, as in this case, by the act of a person who had been formerly, but was no longer, in the service of the master, but who had been selected as fully competent, would not have the effect of making the master liable; though this person and the injured man could not be technically described as fellow-workmen in a common employment.

THE ART-UNION OF LONDON PREMIUM.—The premium of 200*l.*, offered by the Council of the Art-Union of London, for the best set of designs illustrative of some English literary work or period of history, has been awarded to Mr. Henry C. Selous, for a series of drawings illustrating the romance "Hereward."

SEA WALLS.—Where a man buys land below the level of high water, and which could be daily covered by the overflow of sea-water, were it not prevented by the obstacle of a sea-wall, the purchaser has notice, and is thereby made aware that by law, unless for some custom, or unless some special contract exists exempting him, he is liable to contribute to its repair. The Master of the Rolls thus held in the case of Morland *v.* Cook—a suit instituted by the proprietors of certain land within the parish and level of Broomhill, in Romney parish, in the counties of Sussex and Kent, to compel the defendants to contribute towards the repair of a sea-wall formed on the southern extremity of the parish, to exclude the inroads of the sea.

NEW WAREHOUSES AT BOSTON, MASSACHUSETTS.—The Donahoe buildings, on Franklin and Hawley streets, Boston, are in the French Renaissance style, for which the Boston streets are noted. The two façades of the block on the two streets above named have together a frontage of 175 ft., with a height of 65 ft. above side-walks. This height is subdivided into four stories, all of which are faced with white granite from the quarries of Concord, New Hampshire, with the mouldings and other enrichments selected from the latest Paris structures by Visconti and other architects who have received the patronage of the Emperor Napoleon. The stonework of the façades is crowned by a double two-story roof. The building has been designed and superintended by Messrs. Gridley J. F. Bryant & Louis P. Rogers, architects. The mechanical execution of the various works has been carried out by Messrs. John W. Leighton; Granite Railway Company (O. E. Shelden, agent); George W. & F. Smith; Carlisle & Cummings; Francis Richards; C. Parker & Son; Duffey & Hartnell; and Otis Tufts.

TENDERS.

For rebuilding the Star Inn, Reading, for Messrs. Langton, Burrows, & Co. Messrs. W. & J. T. Brown, architects:—

Wheeler, Brothers (accepted)	£530 0 0

For the erection of a house in the Downs, Park-road, Hackney Downs, N.E. Messrs. Shaw & Torkington, architects:—

H. E. & A. E. Abery (accepted)	£670 0 0

For the conversion of three railway arches at the Surrey end of the Cannon-street railway bridge, into a wharf. Messrs. Shaw & Torkington architects:—

H. E. & A. E. Abery	£670 13 0
Rawlins	532 0 0
A. & J. Smith	530 0 0
Lewis	475 0 0
Goslin	460 0 0
Holmes (accepted)	420 0 0

For the erection of new farm-buildings at Spring Farm, Bulphan, near Tilbury, Essex, for Mr. J. Mitchell. Messrs. Shaw & Torkington, architects:—

Lewis	£545 0 0
Turner	533 15 2
Blake	380 0 0
Horscroft	380 0 0
Larkin (accepted)	280 10 0

Accepted for the erection of a brewery for Messrs. Bentley & Shaw, Huddersfield. Messrs. Davison & Scamell, architects:—

Excavators, Bricklayers, Mason's, &c., Work.

Mallinson, Bremmar, & Gledhill	£2,520 0 0

Carpenters, Joiners, and Ironmongers' Work.

Rushworth	£362 0 0

Ironfounders and Smiths' Work.

Harrison & Bedford	£1,690 0 0

Plumbers and Glaziers' Work.

Taylor & Co.	£147 0 0

Slaters' Work.

Goodwin & Son	£127 9 0

Painters' Work.

Brighouse	£48 10 0

Plasterers' Work.

Longbottom	£7 5 0

For four shops and houses in Acre-lane, Brixton, for Messrs. Standing & Marten. Mr. Hiscocks, architect. Quantities by Mr. Shrubsole:—

Wardle & Baker	£2,500 0 0
Wilkins	2,464 0 0
Blackburn	2,400 0 0
Super	2,365 0 0
Harrison & Edwards	2,350 0 0
Richards	2,315 0 0
Hosegood & Covey	2,150 0 0
Warr	1,950 0 0
Pierce	1,786 0 0
Minty (accepted)	1,648 0 0

For new school and addition to the Baptist chapel, New Swindon, Wilts. Mr. Thos. S. Lansdowne, architect:—

Drew	£1,605 0 0
Walters	1,487 17 0
Beaven & Son	1,262 9 0
Barrett	1,219 9 6
Sheppard	1,200 0 0

For new roads and drains, Morden, Surrey, for Mr. R. Garth. Mr. Charles Bowes, surveyor:—

	No. 1 contract.	No. 2 contract.
Doggett	£2,254 19 8	£1,933 5 10
Topell	2,244 19 8	1,923 10 4
Holmes	2,277 0 0	1,749 10 0
Bloomfield	2,250 0 0	1,668 10 0
Clarke*	2,221 10 0	1,697 0 0
Goodair	2,212 0 0	1,802 10 0
Blackman	2,237 10 0	1,772 10 0
Neal	2,210 10 0	1,780 0 0
Osentor & Co.†	2,062 0 0	1,982 0 0
Pezzey	2,140 0 0	1,790 10 0
Rough	2,150 0 0	1,510 0 0
Coker, jun.	1,823 0 0	1,344 0 0

* Accepted for No. 2 contract (conditionally).
† Accepted for No. 1 contract.

For memorial synagogue, Chatham. Mr. H. H. Collins, architect:—

Nayler (accepted)	£4,000 0 0

For model farm-buildings, Cutsey. Mr. J. Watson, architect:—

Shobrook & Son	£5,267 0 0
Harvey	5,178 0 0
Goss	5,100 0 0
Pollard & Son	4,900 0 0
Gibson	4,800 16 0
Call & Pethick	4,800 0 0

For building warehouse for Messrs. Turner, Nott, & Strong, West Bute Dock, Cardiff. Mr. J. Hartland, architect. Quantities supplied:—

Eassie & Co.	£2,394 0 0
Webb, Brothers	2,390 0 0
Cooper & Day	2,325 0 0
Lock	2,284 0 0
Shepton	2,280 0 0
Seager (accepted)	2,200 0 0

For labourers' cottages, at Binfield, Berks, for Mr. P. H. Crutchley. Mr. Jos. Morris, architect:—

	Plan A per pair.	Plan B per pair.
Bryand	£320 15 0	£348 16 0
Sheppard	317 0 0	377 0 0
Higgs	316 0 0	363 0 0
Allaway	305 0 0	355 0 0
Lawrence*	294 10 0	340 10 0

* Accepted: two pairs to be built on plan A.

For house on the Redlands Estate, Reading, for Mr. Holder. Mr. Joseph Morris, architect:—

Oldfield	£442 0 0
Higgs	429 0 0
Goodey	425 0 0
Dunn	419 14 0
Smith	417 11 0
Simonds	399 0 0
May (accepted)	399 0 0

For stabling at Messrs. Brown's brewery, Reading. Mr. Joseph Morris, architect:—

White	£214 15 0
May (accepted)	213 19 0

For the erection of the Sheerness public rooms. Messrs. Jeffery & Skiller, architects:—

	Contract No. 1. For hall and offices.	Contract No. 2. Tower.
Hall	£5,290 0 0	£320 0 0
Jefferys	4,444 0 0	310 0 0
Naylar	4,327 0 0	267 5 0
Muller	4,218 0 0	254 15 0
Dover & Co.	4,056 0 0	367 0 0

For rebuilding premises in Milton-street, Cripplegate, for Mr. J. H. Mackie. Mr. Parris, architect. Quantities by Mr. Shrubsole:—

Heaysman & Cockrell (accepted)	£1,427 0 0

For the construction of sewers on the Ashburnham Estate, for T. B. Simpson, esq. Mr. H. Currey, architect:—

George	£5,250 10 0
Nicholson	4,680 0 0
Robinson	4,600 0 0
Thirst	4,525 0 0
Dickenson & Oliver	4,300 0 0
Wigmore	3,550 0 0
Moxon	3,260 0 0
Whittick (accepted)	3,097 0 0

Longdon and Eldersfield drainage, Mr. T. Curley, Hereford, engineer.—The tender of Mr. William Field, of Shrewsbury, for 8,133*l.* 2*s.* 2*d.*, has been accepted. Mr. Thomas Brassey, Westminster, surety.

TO CORRESPONDENTS.

R. R.—S. P.—C. & P.—J. G.—S. & L.—Messrs. R.—J. P.—R. C. H.—T. S. L.—J. S. S.—R. T.—A Lodger.—R. D.—D. & S.—J. & R.—R. C.—H. P. H.—J. M.—R. M. B.—J. M. S.—W. C. T.—Constant Reader.—F. R.—W. D.—M. W.—J. C. W.—T. M.—A. A. L. (certain courses must be gone through and certain examinations passed).—A. R. (see judgment by Mr. Knox in the case of Saville House, Leicester-square, reported at the time in the *Builder*).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of Tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

Advertisements cannot be received for the current week's issue later than **THREE** *o'clock* **P.M.**, *on* THURSDAY.